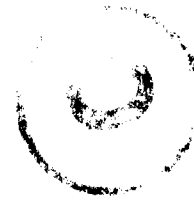


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GOVERNMENT OF MADRAS

1967



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Part V

Statutory rules, orders, etc., issued by Government and
Heads of Departments.

NOTIFICATIONS BY GOVERNMENT.

DEPARTMENT OF INDUSTRIES, LABOUR AND HOUSING.

MADRAS WEIGHTS AND MEASURES (ENFORCEMENT) RULES, 1967.

(G.O. Ms. No. 818, Industries, Labour and Housing, 2nd March 1967.)

G.O. No. A-399 of 1967.

In exercise of the powers conferred by section 43 of the Madras Weights and Measures (Enforcement) Act, 1958 (Madras Act XX of 1958), the Governor of Madras hereby makes the following rules.

RULES

1. *Short title.*—These rules may be called the Madras Weights and Measures (Enforcement) Rules, 1967.

2. *Definitions.*—In these rules, unless the context otherwise requires,

(a) 'Act' means the Madras Weights and Measures (Enforcement) Act, 1958 (Madras Act XX of 1958);

(b) "Capacity" in reference to (i) a weighing instrument means the maximum load which it is constructed to weigh and (ii) a measuring instrument means the maximum length or maximum volume of an article which it is constructed to measure.

(c) "Correct" in reference to a weight or measure or weighing or measuring instrument means correct within the limits of error specified in the schedule.

(d) 'Schedule' means a schedule appended to these rules.

(e) 'Secondary standards' means the secondary standard weights and measures referred to in section 4 of the Act;

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(f) 'Section' means a section of the Act;

(g) 'Working standards' means the set of standard weights and measures referred to in section 3 of the Act.

Explanation.—All words and expressions used but not defined in the rules shall have the meanings respectively assigned to them in the Act.

3. *Custody of reference standards.*—The reference standards shall be kept in the custody of the Controller.

4. *Secondary standards.*—(1) The secondary standards shall conform as regards denominations, material used in construction and design to the specifications laid down in Schedule I.

(2) The secondary standards shall be kept in such places, in such manner and in such custody as the Controller may direct.

(3) A secondary standard shall on verification under sub-section (4) of section 4 of the Act be adjusted if necessary, and marked with the date of verification by the Controller.

(4) The limits of error which may be tolerated in the secondary standards on verification or re-verification after adjustment shall be as specified in Schedule I.

5. *Working standards.*—(1) The working standards shall conform as regards denominations material used in construction and design to the specifications laid down in Schedule II.

(2) The working standards shall be prepared at such place and authenticated by such authority as may be specified by the State Government.

(3) The working standards shall be kept in the custody of the Inspectors.

(4) A working standard shall be verified with the secondary standard at least once in every twelve months, adjusted, if necessary and stamped with the date of verification by the Controller or such other person as may be authorized by him in this behalf.

(5) The limits of error which may be tolerated in the working standards on verification, or re-verification after adjustment shall be as specified in Schedule II.

6. *Working standard balances.*—(1) The Controller shall supply to every Inspector a set of working standard balances with each set of working standard weights.

(2) The types and specifications of such balances shall be as laid down in Schedule III.

(3) The Controller shall cause such balances to be verified at least once in every twelve months and shall cause the same to be adjusted, if necessary, to make them correct within the limits of sensitiveness and to be stamped with the date of verification.

7. *Commercial weights and measures.*—Commercial weights and measures of length and capacity shall conform as regards denominations, material used in construction design to the specifications laid down in Schedule IV;

Provided that—(i) the scripts to be used in marking the denominations of commercial weights and measures of length and capacity and the name or trade mark of the manufacturer, shall be—(a) the Devanagari script; and (b) the Roman script or the Tamil script;

(ii) the numerals used shall be international form of Indian numerals;

(iii) the existing stock of tape measures shall be verified and stamped until 30th September 1967, subject to the condition that every such tape is accurately graduated in metric units of m. and m.m. and is within the prescribed limits of error, irrespective of the fact that it may or may not comply with all the other requirements laid down in this respect in these rules.

8. *Use of bullion weights and carat weights.*—No weight other than a bullion weight shall be used in any transaction for trade, business or commerce in bullion and no weight other than a carat weight shall be used in any transaction for trade, business or commerce in precious stones.

9. *Weighing and measuring instruments.*—(1) All weighing and measuring instruments used, or intended to be used, in transactions for trade, business or commerce shall conform as regards capacities, materials and design, to the specifications laid down in Schedules V and VI.

(2) The limits of error which may be tolerated in such weighing and measuring instruments during verification and inspection shall be as specified in Schedules V and VI.

(3) No person shall use in any transaction for trade, business or commerce in any commodity, a beam scale the sensitivity or sensitiveness of which is lower than that of the beam scale prescribed for that commodity under paragraph 2 (b) of Part II of Schedule V.

(4) Every person using a beam scale in transactions for trade, business or commerce in his premises shall suspend the same to a stand or to a chain by a hook:

Provided that this rule shall not apply to a hawker or a person doing trade, business or commerce in shandies:

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Provided further that if the Government are satisfied that the requirements of this rule cannot immediately be complied with by any class of persons, they may, by notification, in this behalf exempt such class of persons from the provisions of this rule for such period, as may be specified therein:

(5) Nothing in this rule shall apply to such class of weighing or measuring instruments as are in use at the commencement of these rules and for such period as may be specified in this behalf by the Government, by notification:

Provided that—

(a) where any capacity of any such instrument in terms of any weight or measure other than those of a standard mass or measure corresponds to any capacity of such instrument in terms of a standard mass or measure as specified in Schedules V and VI, the limits of error which may be tolerated in such a case shall be the same as are specified in relation to the corresponding capacity of such instrument in the said schedules; and

(b) where the capacity of any such instrument in terms of any weight or measure other than those of a standard mass or measure does not exactly correspond to the capacity of such instrument in terms of a standard mass or measure as specified in Schedules V and VI, the limits of errors and sensitiveness which may be tolerated shall be determined taking into account the limits of error and sensitiveness of the next higher and the next lower capacities assuming the limits to be proportionate to capacity.

10. *Commercial weights, etc. to be verified periodically.*—(1) All weights, measures and weighing instruments used or intended to be used in transactions for trade, business or commerce in bullion and precious stones or by a factory to which the Factories Act, 1948 (Central Act LXIII of 1948), applies or by a railway administration operating any railway as defined in clause (20) of Articles 366 of the Constitution or mines within the meaning of the Indian Mines Act, 1952 (Act 35 of 1952) and all measuring instruments and tank lorries used in transactions for trade, business or commerce shall be verified and stamped in accordance with the Act and these rules at least once in every twelve months.

(2) All weights, measures and weighing instruments used or intended to be used in all transactions for trade, business or commerce other than those specified in sub-rule (1) shall be verified and stamped in accordance with the Act and these rules at least once in two years.

(3) Notwithstanding anything contained in sub-rule (1) or sub-rule (2), any weighing or measuring instrument which has been verified and stamped *in situ* shall, if it is removed and re-erected before the expiry of the period referred to in that sub-rule, be verified and stamped in accordance with the Act and these rules on such removal and re-erection.

11. *Inspection and verification of weights, etc.*—(1) An Inspector shall visit every factory and other places in the area under his charge where weights, measures and weighing and measuring instruments are used, or kept for use in transactions for trade, business or commerce, for verifying the same at least once during the period specified in rule 10, and may also from time to time, make such surprise visits as he may deem necessary.

(2) All weights, measures and weighing and measuring instruments shall be tested in a clean condition, and if necessary, the Inspector shall require the owner or user to clean them.

(3) Where a weight or measure or weighing or measuring instrument is brought to any Inspector for verification, the Inspector shall deal with it in the same manner as upon verification but it shall not be necessary for him to test a glass or earthenware measure, unless the original stamp has been defaced.

(4) The denomination or capacity of a weight, measure, weighing or measuring instrument, if not marked in full, shall be indicated by one of the abbreviations specified in Schedule VII.

(5) (i) Each trader or his agent shall notify to the Inspector concerned the site of all weighbridges, platform machines or measuring instruments in the premises or those owned by him elsewhere and get them verified and stamped well in advance of their use.

(ii) No weighbridge, platform machine or measuring instrument after it has been so verified and stamped by an Inspector, shall be removed or dismantled from its original site without the prior approval of the Controller or the Assistant Controller.

12. *Stamping of weights, etc.*—(1) Before stamping any weight, measure or weighing or measuring instrument, the Inspector shall satisfy himself that such weight, measure, weighing or measuring instrument complies with the requirements of the Act and these rules.

(2) Any weight, measure, weighing or measuring instrument presented for verification shall be complete in itself, and shall not bear a manufacturer's or dealer's mark which might be mistaken for the Inspector's stamp.

(3) The Inspector shall stamp every weight, measure and weighing and measuring instrument with a stamp of uniform design issued by the Controller indicating the area or district in which it has been stamped or the Inspector by whom it is stamped or both:

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Provided that—

(a) no weight, measure, weighing or measuring instrument shall be stamped, which is not in the opinion of the Inspector sufficiently strong to withstand the wear and tear of ordinary use in trade, business or commerce, and

(b) no weighing or measuring instrument manufactured after the coming into force of these rules other than class A beam scales, shall be stamped unless provided by the manufacturer with a plug or stud of soft metal on which to place the Inspector's stamp, such plug or stud being made irremovable by undercutting or in some other suitable manner.

(4) The Inspector shall also mark the date of stamping on all weights, measures (other than glass, earthenware and enamelled metal measures) and weighing and measuring instruments, except when the size of such weight, measure or instrument makes it impracticable.

(5) Notwithstanding anything contained in this rule or in rule 7, the Inspector shall not refuse to reverify and stamp any weight presented to him on the ground only that the denomination of such weight is indicated with the abbreviation 'kg', 'g' or 'mg' instead of with the abbreviation 'கிலோ', 'கிராம்' or 'மிலி' as the case may be.

(6) On completion or verification and stamping, the Inspector shall issue a certificate of verification in the form specified in Schedule VIII.

13. *Marking and verification of packages, etc.*—(1) Packages for containers offered for sale, exposed for sale or kept in possession for sale, shall bear such mark of the manufacturer or dealer of the article as specified in Schedule IX.

(2) The limits of error which may be tolerated in the weight or measure of an article sold or delivered for sale in sealed packings, packages or containers shall be as specified in Schedule IX.

14. *Procedure for carrying out inspections, etc.*—In carrying out his duties of inspection, verification and stamping of weights, measures, and weighing and measuring instruments, *in situ*, the Inspector shall observe the procedure laid down in Schedule X in addition to that laid down in Schedules IV, V and VI.

15. *Obliteration of stamps.*—(1) The Inspector, on inspection, shall obliterate the stamp on—

(a) any weight, measure, or weighing or measuring instrument which cannot be made to conform to the requirements of these rules;

(b) any weight or measure, if it does not admit of proper adjustment owing to its being broken, indented or otherwise defective;

(c) any weight or measure or weighing or measuring instrument which, since the last stamping, has been repaired or re-adjusted so as to cease to conform to the requirements of these rules;

(d) any weight or measure or weighing or measuring instrument due and not submitted for re-verification and stamping;

(e) any weight or measure of length or capacity or a weighing or a measuring instrument, if the error exceeds the limits prescribed in Schedules, IV, V and VI, as the case may be;

Provided that where the error referred to in clause (e) is not, in the Inspector's opinion such as to require the immediate obliteration of the stamp, he shall serve a notice on the person concerned, informing him of the defect found in the weight, measure or weighing or measuring instrument, and calling upon him to remove the defects within a specified period not exceeding eight days and shall—

(i) if such person fails to have them corrected within that period, obliterate the stamp;

or

(ii) if the weight, measure or weighing or measuring instrument is adjusted to remove the defects within the specified period, re-verify the weight, measure or weighing or measuring instrument and stamp the same, if found correct:

Provided further that where the defect in weighing instrument may be corrected by rebalancing, the stamp shall not be obliterated.

(2) Nothing contained in sub-rule (1) shall apply to measuring instruments used or intended to be used in trade, business or commerce for liquid fuel or lubricating oil.

16. *Fees for verification, adjustment and stamping.*—(1) Fees payable for verification and stamping of weights, measures and weighing and measuring instruments at the office of the Inspector shall be as specified in Schedule XI:

Provided that no fee shall be charged for the verification of the weights, measures, and weighing and measuring instruments seized by the officials of the Police department under section 153 of the Criminal Procedure Code and produced before the Inspector of Weights and Measures for certifying the correctness or otherwise of such seized articles for purpose of prosecution under sections 264 to 267 of the Indian Penal Code.

(2) If, at the request of the repairer, owner or user of the weight or measure or weighing or measuring instrument, the verification is done at any premises other than the office of the Inspector, an additional fee at half the rates specified in Schedule XI shall be charged and the owner, repairer or user, as the case may be, of the weight, measure or weighing or measuring instrument, shall also pay the expenses incurred by the Inspector for visiting the premises, including the cost of transporting and handling the Working Standards, balances and other equipment subject to a minimum of rupees five:

Provided that no additional fee shall be charged for verification and stamping *in situ* of—

(a) petrol or fuel pumps, basin fillers, fuel vehicles, weighbridges, crane weighers, dormant platform machines and such other instruments as may be specified in this behalf by the Controller, and

(b) weights, measures and weighing and measuring instruments, in the premises of a manufacturer of such weights, measures and instruments.

Nothing contained in the above proviso shall apply to weights, measures and weighing and measuring instruments offered for stamping by a manufacturer who is also a repairer provided that such weights, measures and weighing and measuring instruments are repaired or calibrated by him.

(3) An Inspector may carry out minor adjustments on payment of the additional fees specified in Schedule XII.

17. *No fee to be charged for re-stamping in certain cases.*—Notwithstanding anything contained in rule 16, no fees shall be payable for re-stamping any weight, measure or weighing or measuring instrument—

(a) within the period specified in rule 10 from the date on which it was last stamped.

(b) held in stock by a manufacturer or dealer, if it is proved to the satisfaction of the Controller that due to circumstances beyond the control of such manufacturer, or dealer that the weights, measures and weighing and measuring instruments in his possession could not be sold within the period specified in rule 10:

Provided that the original stamp on the weight, measure and weighing and measuring instrument is not obliterated under rule 15.

18. *Fees for verification after adjustment.*—(1) The fees for verifying weights, measures or weighing or measuring instruments after adjustment, as provided in rule 15 shall be charged at half the rates specified in Schedule XI.

(2) A weight, measure, or weighing or measuring instrument which on verification as provided in rule 10 is found to be incorrect, shall be returned to the person concerned, for adjustment. When the necessary adjustment has been carried out, such weight, measure or weighing or measuring instrument shall be re-verified on payment of 25 per cent of the fee payable for verifying and stamping such weight, measure or weighing or measuring instrument under Schedule XI and if found correct shall be stamped.

19. *Collection of fees and deposit into the Treasury.*—(1) Before commencing the work of verification or re-verification, the Inspector shall after obtaining a requisition in writing specifying the details of weights, measures, and weighing and measuring instruments which are to be verified or re-verified inform the person concerned of the fees payable by him under these rules and shall receive the same and issue a receipt in the form approved by the Controller, two copies of such receipt being kept on record.

(2) The Inspector shall maintain a register which shall be written up from day to day and shall show the amount of fees and carriage charges collected during the day.

(3) All payments received by the Inspectors shall be paid into the Government Treasury during the week or on the following Monday for credit to the Head "L. II. Miscellaneous—f. Other fees, fines and forfeitures—fees for stamping weights and measures", a receipt obtained and intimation to that effect sent to the Controller.

20. *Seizure, detention and disposal of unauthorised weights, measures and instruments.*—(1) Weights, measures, weighing and measuring instruments shall be liable to be seized and detained if—

(a) they are not of the denomination specified in Schedules IV, V and VI;

(b) they are false or defective;

(c) fraud is committed in using them;

(d) the stamp on them is forged or transferred;

Provided that in the case of a dormant platform machine including weigh-bridge and crane-weigher or a measuring instrument, its use shall be prohibited by effecting seizure of a part thereof or by sealing the instrument by such methods as may be prescribed by the Controller.

(2) Any weight or measure or weighing or measuring instrument or article seized and detained under sub-rule (1), which is not to be the subject of proceedings in a court, shall after the expiry of sixty days after seizure, be so dealt with as the Controller may, by general or special order, direct and the materials thereof shall be sold and the proceeds credited to the Government.

(3) Any weight or measure or weighing or measuring instrument seized and detained under sub-rule (1), which is to be the subject of proceedings in a court, shall be produced by the Inspector before the Court and shall, after the conclusion of the proceedings before the court, be dealt with in accordance with the orders of the court.

21. *Duties of Inspectors.*—The duties of an Inspector shall be as follows:—

- (a) Verification and stamping of weights and measures and similar instruments, or articles.
- (b) Inspections.
- (c) Collection of fees and other charges, and submission of the reports and returns specified in these rules as required by the Controller.
- (d) Safe custody of the articles seized and detained in the course of his duty.
- (e) Safe and proper custody of the Secondary and working Standards and other equipment entrusted to his charge.
- (f) Maintenance of such books as may be specified by the Controller.
- (g) Maintenance of such registers and submission of such returns as may be prescribed by the Controller from time to time.
- (h) Keeping of accurate inventory of the punches, stamps, stencils, etc. supplied and check them at frequent intervals;
- (i) Keeping all punches and stencils under safe custody and prevent their improper and unauthorised usage;
- (j) Deface all worn-out punches and stencils in the presence of an officer authorised by the Controller.
- (k) Report immediately, the loss of any punch or stencil to the Controller through his immediate superior officer.
- (l) Such other duties under the Act and Rules as the Controller may, by special or general order, specify.

22. *Inspectors to be provided with working standards, balances, etc.*—Every Inspector shall be provided by the Controller with—

- (i) working standards, balances for testing weights, adequate instrumental equipment, travelling kit for keeping such material and form as may from time to time be necessary;
- (ii) such dies, punches, stencil plates, branding irons, etching and engraving and other implements as may be necessary for affixing verification stamp, the design and number of which shall be furnished by him; and
- (iii) punches of suitable size eight pointed star design as shown in the illustration below for the purpose of obliterating the stamps.

23. *Licensing of manufacturers, repairers and dealers of weights, measures, etc.*—(1) (a) Every manufacturer or repairer of, or dealer in weights, measures or weighing and measuring instruments shall apply to the Controller for a licence in Form A, B or C as the case may be set out in Schedule XIII affixing a Court fee label of Rs. 2 on each application form, and shall obtain a licence from the Controller in the form set out in Schedule XIV. Such licence shall be renewed for every calendar year, i.e., from 1st January to 31st December of every year. However, in exceptional cases, the Controller shall renew the licence, provided the defaulter applies for renewal within thirty days from the date of expiry of the said licence and pays a penalty of Rs. 5 in each case.

(b) Every manufacturer shall obtain a separate Dealer's Licence in Form B of Schedule XIV if the manufacturer wants to sell his products in retail.

(2) The fees payable for such licence and its renewal shall be as specified in Schedule XV.

(3) The Controller may, by order, refuse to grant or renew the licence or suspend or cancel the licence of a manufacturer or repairer of, or dealer in weights, measures, weighing and measuring instruments on the ground of want of proper and adequate workshop facilities or staff or incompetency or failure to observe any provisions of the Act or these rules;

Provided that no such order shall be made without giving the aggrieved person an opportunity of stating his case.

(4) The Controller shall maintain a register of licensed manufacturers, repairers and dealers in the form set out in Schedule XVI.

(5) Every repairer shall be provided with an identification card duly signed by the Controller or by any other officer duly authorised by him on his behalf.

24. *Records to be maintained by manufacturers, etc.*—Every manufacturer or repairer of, or dealer in, weights, measures or weighing and measuring instruments shall maintain such records in such form and submit such returns at such time as the Controller may direct.

25. *Certificate of verification to be exhibited.*—The person to whom a certificate of verification is issued shall exhibit the same in a conspicuous place in the premises where the weights, measures or weighing or measuring instruments to which the certificate relates, are used.

26. *Exemption from observing requirements of rules.*—Where in the special circumstances in any case it appears to an Inspector to be impracticable to comply literally with any requirements of any of these rules, he shall consult the Controller and the Controller may, on such reference if he thinks fit, dispense with the observance of such requirements:

Provided that where the special circumstances relates to any particular trade or locality, the Controller shall consult Government before dispensing with the observance of such requirements.

27. *Penalty.*—Any person who contravenes any provision of these rules shall be punishable with fine which may extend to five hundred rupees.

28. *Appeals.*—(1) Any person aggrieved by an order of an Inspector or an Assistant Controller, may prefer an appeal to the Controller in the form given in Schedule XVII within sixty days from the date of communication of such order.

(2) A Court fee label of Rs. 2-00 shall be fixed on the appeal petition.

(3) The appellant may, if he so desires, be heard in person, or through an authorised representative, by the Controller.

29. *Repeal and Savings.*—The Madras Weights and Measures (Enforcement) Rules, 1958, are hereby repealed except as respects things done or omitted to be done thereunder.

SCHEDULE I.

(See rule 4.)

1. *Denominations, materials, shape, permissible, errors of secondary standards of weight and measures—*

Denominations.		
Kilogram series.	Gram series.	Milligram series.
(1)	(2)	(3)
10	500	500
5	200	200
..	200	200
..	100	100
2	50	50
2	20	20
..	20	20
..	10	10
1	5	5
..	2	2
..	2	2
..	1	1

Materials.—(a) Weights of 10 kg. to 1 g. shall be cast from admiralty bronze of the following composition:—

Constituent.	Per cent.
Tin	9.50 to 10.50.
Zinc	1.50 to 2.50.
Lead (maximum)	0.50
Nickel (maximum)	1.00
Other elements	0.15
Total (maximum) .. .. .	....
Copper	Remainder.

(b) Weights of 500 mg. to 50 mg. shall be made of cupronickel having a nominal composition of 79 to 81 per cent copper and 19 to 21 per cent nickel. In any case the total impurities shall not exceed 1.5 per cent.

(c) Weights of 20 mg. to 1 mg. shall be made of commercially pure aluminium sheets. Copper, silicon and iron contained as impurities in commercially pure aluminium shall not exceed 0.3 per cent.

Shape.—(a) For kilogram and gram series—Integral cylindrical body with knobs flattened at the top. Weights of 10 kg. to 100 g. (inclusive) shall have adjusting devices. Lead shall not be used as an adjusting material.

(b) For milligram series, the weights shall be in the form of square sheets, one of the corners being bent at right angles.

(c) The denominations shall be marked on the weights.

Permissible errors.—The permissible errors in excess and in deficiency shall be as follows :—

Denominations.	Permissible errors.	
	In excess. mg	In deficiency. mg
10 kg	50	25
5 kg	25	12.5
2 kg	15	7.5
1 kg	10	5
500 g	5	2.5
200 g	4	2
100 g	3	1.5
50 g	2	1
20 g	1.5	0.75
10 g	1	0.5
5 g	0.8	0.4
2 g	0.6	0.3
1 g	0.4	0.2

Denominations.	Permissible errors.	
	In excess. mg	In deficiency. mg
500 mg	0.4	0.2
200 mg	0.2	0.1
100 mg	0.2	0.1
50 mg	0.1	0.05
20 mg	0.1	0.05
10 mg	0.05	0.02
5 mg	0.05	0.02
2 mg	0.05	0.02
1 mg	0.02	0.02

2. Secondary standard capacity measures—

Denominations.	
Litre series (l).	Millilitre series (ml.).
5	500
2	200
1	100
—	50
—	20

Materials.—Secondary standard measures of capacity shall be cast out of admiralty bronze of the same composition as is employed in the case of secondary standard weights.

Shape.—(a) The 5 litre measure shall be cylindrical and have its inside diameter equal to the height of the measure. This shall have two handles attached securely to its sides.

(b) Measures of 2 litres and below shall be of the same shape as above but shall not have any handle.

(c) The denominations of the measures shall be engraved on the outside surface.

(d) Each set of measures shall be supplied with specially selected striking glasses.

Permissible errors.—The permissible errors in excess and deficiency shall be as follows :—

Denominations.	Permissible errors.	
	In excess. (ml.)	In deficiency. (ml.)
5 l	2	2
2 l	1	1
1 l	0.8	0.8
500 ml	0.5	0.5
200 ml	0.4	0.4
100 ml	0.3	0.3
50 ml	0.2	0.2
20 ml	0.1	0.1

3. Secondary standard length measures—

- (1) Material 58 per cent nickel-steel.
- (2) Section Rectangular cross-section with dimension 38 mm. x 15 mm.
The top surface shall have two rectangular grooves, along its length.
- (3) Overall length 1030 mm.
- (4) Graduated length 1010 mm.
- (5) Finish Bright, highly polished.
- (6) Graduations Graduated in mm. throughout.
- (7) Thickness of Graduation Marks Not less than 30 microns and not more than 50 microns.

(8) Tolerance—

(i) The maximum permissible errors in the graduations shall be, (i) ± 25 microns between any 2 adjacent millimetre marks, provided that the error between any two consecutive centimetre marks shall also not exceed ± 25 microns.

(ii) ± 50 microns between any two marks more than 10 cm. apart.

SCHEDULE II.

(See rule 5.)

Denominations, material, shape, permissible errors for working standards of weights and measures.

1. Working standard weights—

Denominations.		
Kilogram series.	Gram series.	Milligram series.
20	500	500
10	200	200
5	100	100
2	50	50
2	20	20
1	10	10
..	5	5
..	2	2
..	2	2
..	1	1

Materials.—(a) Weights of 20 kg. to 1 g. shall be cast from admiralty bronze or cupro-nickel of the following composition :—

Admiralty bronze—

Constituent.	Per cent.
Tin	9.50 to 10.50.
Zinc	1.50 to 2.50.
Lead (maximum)	0.50
Nickel (maximum)	1.00
Other elements	0.15
Total maximum .. .. .	....
Copper	Remainder.
Cupro-nickel .. .. .	....
Copper	79 to 81 per cent.
Nickel	19 to 21 per cent.

Total impurities not to exceed 1.5 per cent.

(b) Weights of 500 mg. to 100 mg. shall be made of admiralty bronze (rolled) sheets (composition as in (a) above).

(c) Weights of 50 mg. to 1 mg. shall be made out of commercially pure aluminium sheets, copper, silicon and iron contained as impurities in commercially pure aluminium shall not exceed 0.3 per cent.

Shape.—(a) Weights of 20 kg. and 10 kg. shall be cylindrical in shape and shall be cast in two halves, the top half being screwed snugly into the bottom half. The top half shall be cast in the form of a handle for lifting purposes. The two halves, after assembly, shall be locked by means of a setscrew over which the seal of the verifying authority shall be stamped.

(b) Weights of 5 kg. to 200 g. (inclusive) shall be cylindrical in shape and shall be cast in two halves, the top half being screwed snugly into the bottom half. The top half shall be cast in the form of a knob for lifting purposes. The two halves, after assembly, shall be locked by means of a setscrew, over which the seal of the verifying authority shall be stamped.

(c) Weights of 100 g. to 10 g. shall be as (b) above except that there shall be no locking arrangement.

(d) Weights of 5 g. to 1 g. shall be integral solid weights.

(e) Weights of 500 mg. to 1 mg. (inclusive) shall be of square shape with one of the sides bent at right angles to the flat surface for ease of handling.

(f) The denominations shall be marked on the weights.

Permissible errors.—The permissible errors in excess and deficiency shall be as follows :—

Denomination.	Permissible errors.	
	In excess. mg.	In deficiency. mg.
20 kg	200	100
10 kg	100	50
5 kg	50	25
2 kg	30	15
1 kg	20	10
500 g	10	5
200 g	8	4
100 g	6	3
50 g	4	2
20 g	3	1.5
10 g	2	1
5 g	1.5	0.8
2 g	1.2	0.6
1 g	0.8	0.4
500 mg	0.8	0.4
200 mg	0.4	0.2
100 mg	0.4	0.2
50 mg	0.2	0.1
20 mg	0.2	0.1
10 mg	0.1	0.05
5 mg	0.1	0.05
2 mg	0.1	0.05
1 mg	0.05	0.05

2. Working standard capacity measures.

Denominations.

Litre series (l).	Millilitre series (ml.)
..	500
10	200
5	100
2	50
1	20

Materials of construction.—

Working standard capacity measures shall be pressed out of oxygen free, deoxidised annealed copper sheets of deep drawing quality.

Shape.—(i) Working standard capacity measures of 10 litres shall be cylindrical with the handles securely fixed to the sides.

(ii) All other working standard capacity measures shall also be cylindrical, but shall not be provided with handles. The diameter of each measure shall approximately be equal to the height of the measure. The measure shall be suitably reinforced.

(iii) The denominations of the working standard capacity measure shall be engraved on the outside surface.

(iv) The outside of the body of the working standard capacity measure shall be oxidised to give a smooth dull black surface and the inside shall be tinned.

(v) Each set of working standard capacity measures shall be supplied with specially selected striking glasses and the measures and glasses shall be securely packed in velvet lined teakwood boxes.

Permissible errors.—

Denominations.	Permissible errors.	
	In excess. (ml.)	In deficiency. (ml.)
10 l	8	8
5 l	4	4
2 l	2	2
1 l	1.5	1.5
500 ml	1.0	1.0
200 ml	0.8	0.8
100 ml	0.6	0.6
50 ml	0.4	0.4
20 ml	0.2	0.2

Pipette measures.—Pipettes of the following description may also be used as working standard measures :—

(i) Marked pipettes of capacities 10 ml. and 5 ml.

(ii) Graduated pipettes of capacities 5 ml. graduated at every tenth of a ml.

SCHEDULE III.

(See rule 6.)

Specifications for working standard balances.

1. Range of balances—

Capacity.	Sensitiveness/mg/division of scale.	Approximate beam length.
50 kg	100	750 mm
5 kg	10	250-300 mm
200 g	1.0	150-200 mm
2 g	0.02	120-150 mm

2. Types.—Working standard balances shall be of both in-door and out-door types.

3. Design and construction.—The balances shall be constructed of non-magnetic materials and shall be robust in construction. They shall be capable of being easily assembled. Out-door type balance shall be fitted in suitable carrying cases to enable the balances to withstand rough transport conditions. Smaller balances, i.e. capacity 5 kg. and below shall be provided with glass cases. Portable balances of capacity 5 kg. and below shall be fitted into one carrying case for easy transportation.

SCHEDULE IV.

(See rule 7.)

Specifications for commercial weights and measures of length and capacity.

PART I.—Commercial weights (other than carat weights).

1. Denominations.—The denominations for the different types of weights shall be as follows—

(a) Iron and steel weights—

50 kg	500 g
20 kg	200 g
10 kg	100 g
5 kg	50 g
2 kg	20 g
1 kg	10 g

(b) Brass and bronze weights—

Bullion.		Other than bullion.	
20 kg	500 g	1 kg	500 g
10 kg	200 g		200 g
5 kg	100 g		100 g
2 kg	50 g		50 g
1 kg	20 g		20 g
	10 g		10 g
	5 g		5 g
	2 g		2 g
	1 g		1 g

(c) Sheet metal weights (Bullion and other than Bullion)—

500 mg
200 mg
100 mg
50 mg
20 mg
10 mg
5 mg
2 mg
1 mg

The actual series to be used in practice shall consist of two weights of denomination 2, 20 or 200.

2. Iron and steel weights.—(a) Materials—Weights of 50 kg. and down to and including 5 kg. shall be made only of cast iron. Weights of 2 kg. and down to and including 50 g. shall either be made of cast iron or forged mild steel.

(b) Shapes and dimensions—The shapes and dimensions of cast iron weights shall conform to figures 1 and 2 read with Tables 1 and 2 and those of mild steel shall conform to Fig. 2 read with Table 2.

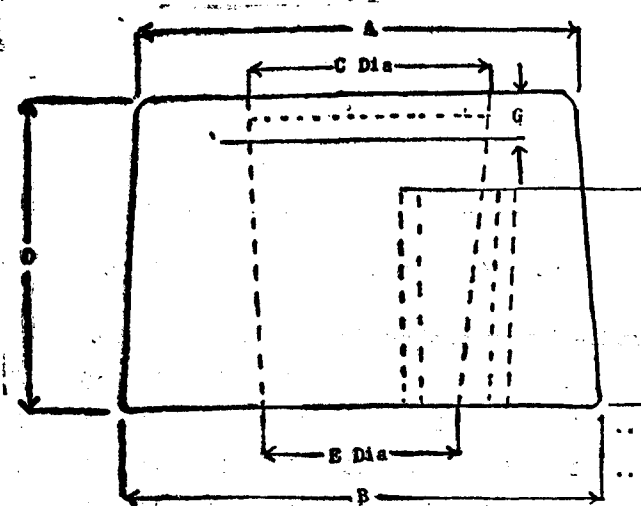
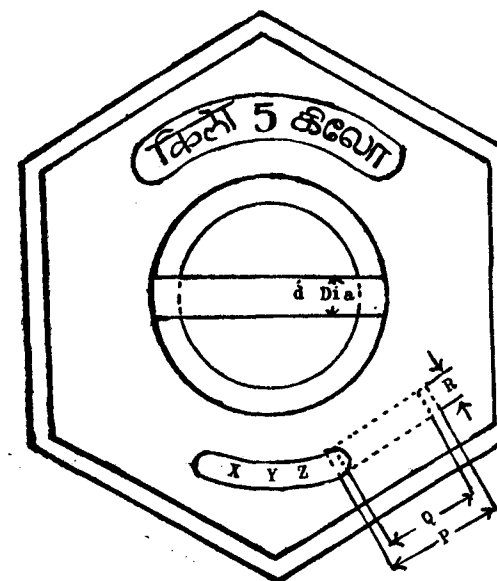


FIG. 1.—Cast Iron weight with Cast-in-handle.

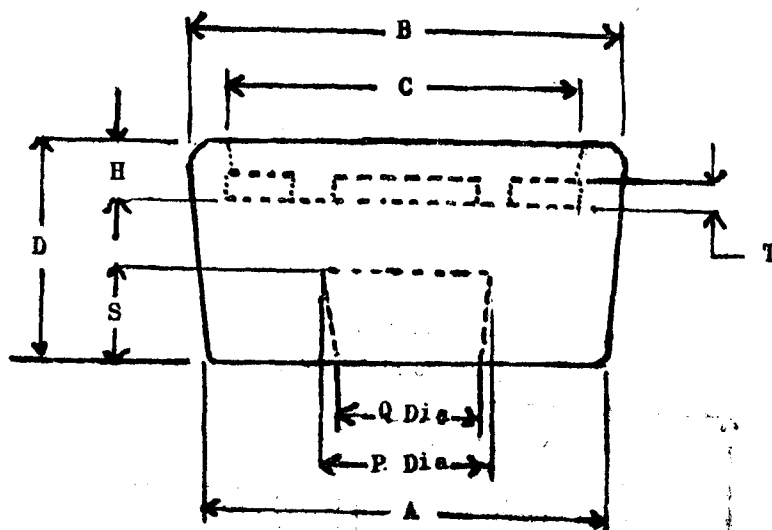
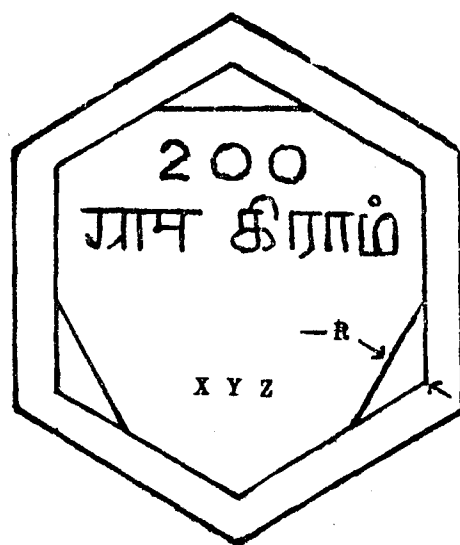


FIG. 2. Cast Iron or forged mild steel weights.

TABLE 1.—Dimensions of cast iron weights with handle.

Denominations.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	d.
50 kg	236	253	134	170	100	27	58	48	24	102	32										
20 kg	188	200	112	113	90	21	44	38	19	66	22										
10 kg	152	161	92	88	74	18	36	30	15	54	19										
5 kg	125	132	75	65	62	15	29	25	12	40	16										

All dimensions in millimetres, tolerance on dimensions = 5 per cent.

TABLE 2.—Dimensions of cast iron or forged mild steel weights.

Denominations.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
2 kg	94	101	76	40	10	34	30	9	18	4										
1 kg	73	79	60	34	8	32	28	8	16	4										
500 g	57	62	46	27	6	23	20	6	13	3										
200 g	43	47	36	21	6	22	20	4	9	3										
100 g	34	36	28	16	4	18	16	3	7	2.5										
50 g	26	28	22	13	3	16	14	3	4	2										

All dimensions in millimetres.

Tolerance on dimensions—

- (a) for weights above 1 kg. ± 5 per cent.
 (b) for weights 1 kg. and below ± 10 per cent.
 (c) *Cast-in-handle*.—Weights of denominations of 50 kg. and down to and including 5 kg. shall be provided with cast-in-handles made of mild steel.
 (d) *Nesting of weights*.—Weights of denominations of 2 kg. and down to and including 50 g. shall nest with each other.
 (e) *Loading holes*.—Weights with cast-in-handle (see Fig. 1) shall have one rectangular loading hole on the under-surface tapering outside along the width while the nesting weights (see Fig. 2) shall have one round loading hole, tapering outwards in the centre of the underside.

(f) Permissible errors—

Denomination of commercial weights.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
50 kg	+20,000 mg	—10,000 mg to +20,000 mg
20 kg	+10,000 mg	—5,000 mg to +10,000 mg
10 kg	+5,000 mg	—2,500 mg to +5,000 mg
5 kg	+3,000 mg	—1,500 mg to +3,000 mg
2 kg	+1,600 mg	—800 mg to +1,600 mg
1 kg	+1,000 mg	—500 mg to +1,000 mg
500 g	+600 mg	—300 mg to +600 mg
200 g	+400 mg	—200 mg to +400 mg
100 g	+320 mg	—160 mg to +320 mg
50 g	+200 mg	—100 mg to +200 mg

NOTE.—New weights, when presented for checking and stamping, shall not weigh less than the denomination value plus 50 per cent of the excess tolerance shown above.

3. *Brass and bronze weights*—(a) *Materials*.—The weights shall be made of cast brass or cast bronze, or processed from brass rods.

(b) *Shapes and dimensions.*—Brass and bronze weights shall be of the following types:—

(I) *Bullion weights*—(i) Weights of denominations of 20 kg. and down to and including 1 g., shall be cylindrical in shape, with a handle for 20 kg. and 10 kg. weights, and a knob for the rest of the denominations. Shapes and dimensions shall conform to Figures 3 and 4 read with Tables 3 and 4 respectively. Weights of 20 kg. down to and including 200 g. shall be marked with the words “பொன்” and “விலியன்” within a diamond as shown in Figures 3 and 4 and weights of 100 g. down to and including 10 g. shall be marked with only a “diamond”.

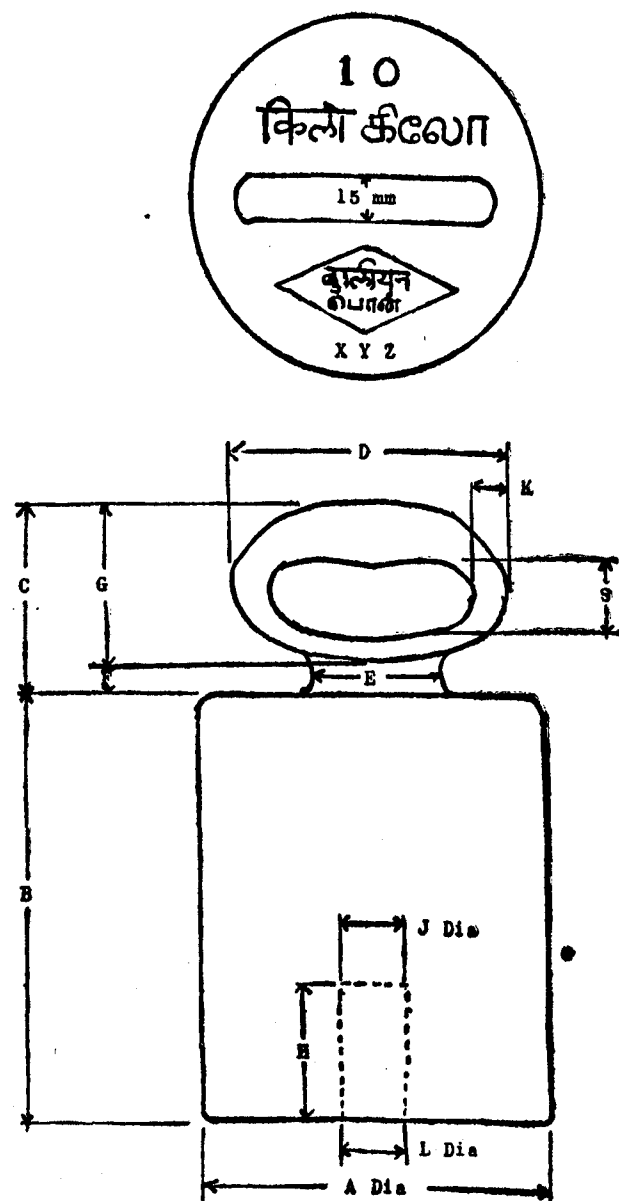


FIG. 3.—Cylindrical Bullion weight with handle.

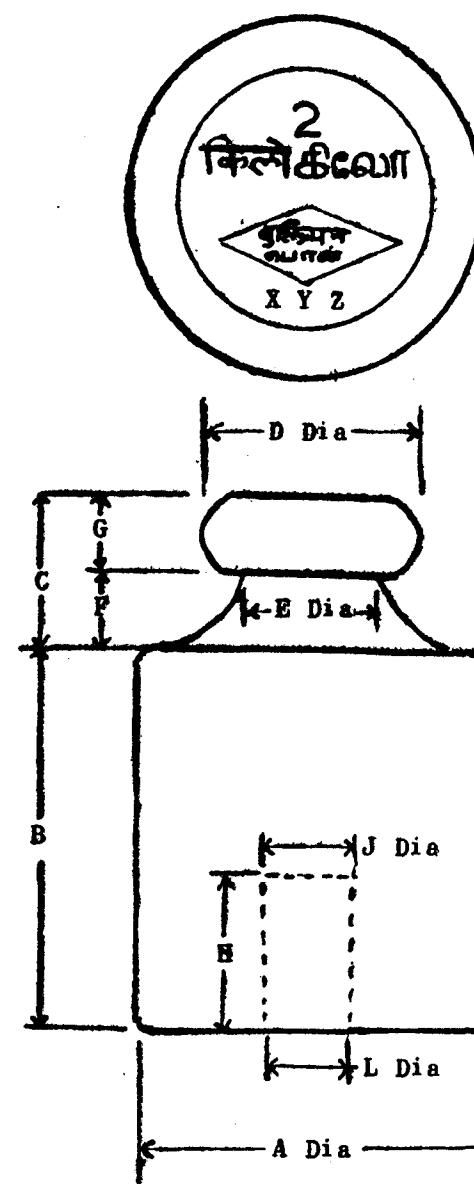


FIG. 4.—Cylindrical Bullion weight with knob.

TABLE 3.—Dimensions of cylindrical bullion weights with handle.

Denominations.	A.	B.	C.	D.	E.	F.	G.	H.	L.	J.	K.	S.
20 kg	133	157	71	106	41	16	55	51	25	26	14	25
10 kg	106	130	64	85	33	14	50	49	25	26	13	25

All dimensions in millimetres.

Tolerance on dimensions + 5 per cent.

TABLE 4.—Dimensions of cylindrical bullion weights with knob.

Denomination.	A.	B.	C.	D.	E.	F.	G.	H.	L.	J.
5 kg	86	88	41	56	37.5	22.5	18.5	38	19	20
2 kg	64	67	27	39	24	14	13	27	17	17.5
1 kg	50	50	23.5	33	21	12	11.5	25	16	17
500 g	41	39	20	25	17	10.5	8.5	19	16	17
200 g	32	29	16	20	12	9	7	13.5	13	13.5
100 g	24	24	12	17	9.5	6	6	11	11	12
50 g	19	19	10	14	8	5	5	9	9.5	10
20 g	14	14	6	10	6	3	3	6	6	7
10 g	11	11	5	8	5	3	2	..	..	..
5 g	9	9	4	6	4	2	2	..	..	..
2 g	6	6	3	4	2	1.5	1.5	..	..	..
1 g	6	6	2	3	1	1	1	..	..	..

All dimensions in millimetres.

Tolerance on dimensions—

(a) for weights above 1 kg. +5 per cent.

(b) for weights 1 kg. and below +10 per cent.

(ii) Weights of denominations 1 kg. down to and including 1 g. shall be flat cylindrical in shape (without a knob) and shall nest with each other. Shapes and dimensions shall conform to Figure 5 read with Table 5. Weights of 1 kg. and down to and including 20 g. shall be marked with the words “*பொன்*” and “*விலியன்*” within a diamond as shown in Figure 5 and weights of 10 g. and below down to and including 1 g. shall be marked with only a diamond.

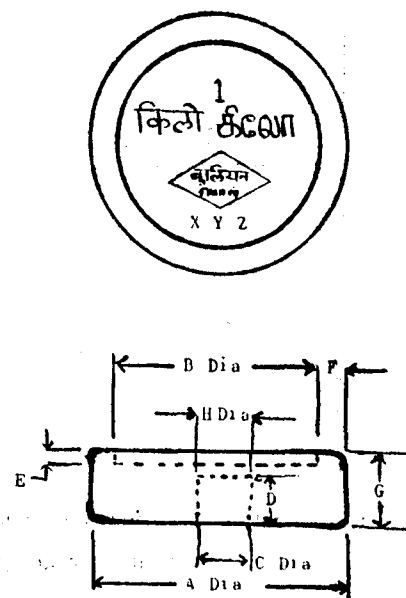


FIG. 5.—Flat cylindrical bullion weight.

TABLE 5.—Dimensions of flat cylindrical bullion weights.

Denomination.	A.	B.	C.	D.	E.	F.	G.	H.
1 kg	82.5	66.5	16	16	3	8.0	24	17
500 g	65	49.5	16	13	2.5	7.75	19	17
200 g	48.0	38.5	13	9.5	2.5	4.75	14	14
100 g	37.5	29.5	11	7	2	4	11.5	12
60 g	28.5	22.5	9.5	6	1.5	3	10.5	10
20 g	21.5	17.5	8	4	1.5	2.0	7	8
10 g	16.5	13.5	..	..	1	1.5	6	..
5 g	12.5	10.5	..	..	1	1	5	..
2 g	10	8	..	..	0.5	1	4	..
1 g	7.5	..	..	..	..	..	2.5	..

All dimensions in millimetres.

Tolerance on dimensions +10 per cent.

(II) Other than bullion weights.—(For supplementing the iron and steel series) weights of denominations 1 kg. and down to and including 1 g. shall be flat cylindrical in shape and shall have a distinct downward taper. Shapes and dimensions shall conform to Figure 6 read with Table 6.

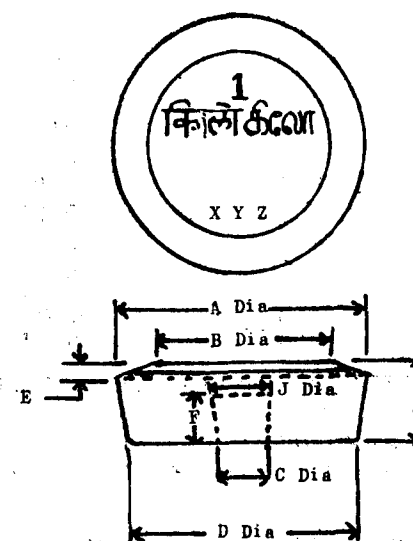


FIG. 6.—Flat cylindrical weight.

TABLE 6.—Dimensions of flat cylindrical weights.

Denomination.	A.	B.	C.	D.	E.	F.	G.	J.
1 kg	84.5	58	16	76	4	15	25.5	20
500 g	64	46.5	16	56	3	14	23	20
200 g	50	34.5	13	45	2.5	9.5	15	15
100 g	38	26	11	33.5	2	9.5	13	13
50 g	29	20.5	10	25	2	8	11.5	12
20 g	22	16.5	8	19.5	1	4	8	10
10 g	17.5	12.5	..	16	1	..	6	..
5 g	13	10	..	11.0	1	..	5	..
2 g	10	7.5	..	9	0.5	..	3.5	..
1 g	8	..	..	6.5	..	..	2.5	..

All dimensions in millimetres.

Tolerance on dimensions +10 per cent.

(c) *Loading holes*.—Weights of denominations 20 kg. and down to and including 20 g. shall have a round loading hole, tapering outwards, in the centre of the underside (see Figures 3, 4, 5 and 6).

(d) *Permissible errors*.—

Type of weights.	Denomination of commercial weights.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
(1)	(2)	(3)	(4)
Bullion weights	20 kg	+500	-250 to +500
	10 kg	+250	-125 to +250
	5 kg	+150	-75 to +150
	2 kg	+80	-40 to +80
	1 kg	+50	-25 to +50
	500 g	+30	-15 to +30
	200 g	+20	-10 to +20
	100 g	+16	-8 to +16
	50 g	+12	-6 to +12
	20 g	+10	-5 to +10
	10 g	+8	-4 to +8
	5 g	+6	-3 to +6
	2 g	+4	-2 to +4
	1 g	+2	-1 to +2
Other weights except bullion and carat weights.	1 kg	+250	-125 to +250
	500 g	+150	-75 to +150
	200 g	+100	-50 to +100
	100 g	+80	-40 to +80
	50 g	+60	-30 to +60
	20 g	+50	-25 to +50
	10 g	+40	-20 to +40
	5 g	+30	-15 to +30
	2 g	+20	-10 to +20
	1 g	+10	-5 to +10

4. *Sheet metal weights*.—(a) *Materials*.—Sheet metal weights shall be made of stainless steel, aluminium, brass or nickel silver sheets.

(b) *Shapes and dimensions*.—(i) *Other than bullion weights*.—After bending along one of sides (See Figure 7), the weights shall have the dimensions given in Table 7 and the following shapes:—

Denominations.	Shape.
500, 50, 5	Hexagon.
200, 20, 2	Square.
100, 10, 1	Triangle.

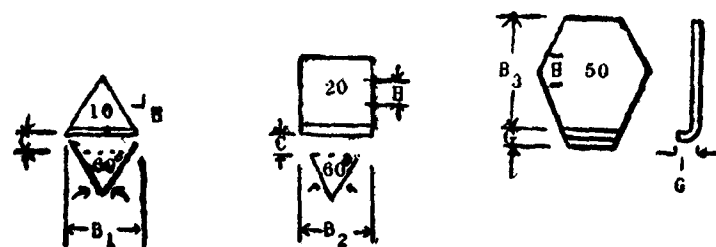


Figure 7.—Sheet metal weights.

TABLE 7.—Dimensions of sheet metal weights.

Denomination.	B1.	B2.	B3.	H.	G.
mg.					
500	..	..	12	4	2
200	..	9.0	..	3.5	2
100	9.0	..	..	3.5	2
50	..	..	9.5	3	1.5
20	..	6.4	..	2.5	1.5
10	6.4	..	..	2	1.5
5	..	..	6.3	2	1
2	..	3.6	..	2	1
1	3.6	..	..	2	1

All dimensions in millimetres.

Tolerance on dimensions ± 10 per cent.

(ii) *Bullion weights*.—When intended for use in the bullion trade, sheet metal weights shall, after bending, have circular shape; their diameters shall be as given in Fig. 8 read with Table 8.

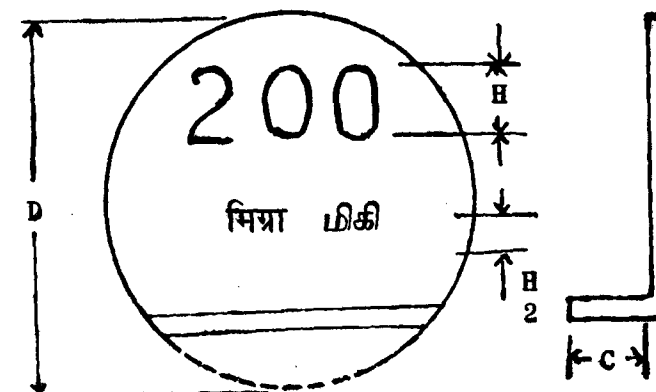


Fig. 8.—Sheet Metal Bullion weight.]

TABLE 8.—Dimensions of sheet metal weights (bullion).

Denomination.	D.	C.	H.
mg.			
500	11.0	2	2
200	10.0	2	2
100	9.0	2	2
50	8.0	1.5	2
20	6.3	1.5	1.5
10	5.6	1.5	1.5
5	5.0	1.0	1
2	4.0	1.0	1
1	3.2	1.0	1

All dimensions in millimetres.

Tolerance on dimensions ± 10 per cent.

Permissible errors—

Type of weights.	Denomination of commercial weights.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
	mg.	mg.	mg.
Bullion weights	500	+1.6	-0.8 to +1.6
	200	+1.2	-0.6 to +1.2
	100	+0.8	-0.4 to +0.8
	50	+0.4	-0.2 to +0.4
	20	+0.4	-0.2 to +0.4
	10	+0.2	-0.1 to +0.2
	5	+0.2	-0.1 to +0.2
	2	+0.2	-0.1 to +0.2
	1	+0.1	-0.05 to +0.1
Other weights except bullion and carat weights.	500	+8.0	-4.0 to +8.0
	200	+6.0	-3.0 to +6.0
	100	+4.0	-2.0 to +4.0
	50	+2.0	-1.0 to +2.0
	20	+2.0	-1.0 to +2.0
	10	+1.0	-0.5 to +1.0
	5	+0.4	-0.2 to +0.4
	2	+0.2	-0.1 to +0.2
	1	+0.1	-0.05 to +0.1

5. *Manufacture and finish*—General.—When the weights are cast, the castings shall be reasonably smooth and free from dross, pits, blow holes and other defects. When the weights are made by machinery for forging, the surface shall be reasonably smooth. Sheet metal weights shall be clearly sheared and shall be free from burrs. Cast iron and forged weights shall be coated with a thin film of suitable black paint or varnish.

The raised markings on weights shall be clean and legible. The stamped markings on sheet metal weights shall be legible and deep enough to ensure indelibility over a long period, but not so deep as to crack the sheet.

When lead is used in adjusting weights, it shall be so fitted as to ensure that it does not dislodge itself under normal conditions of use. The steel handles of cast iron weights shall be rigidly fixed.

6. *Marking*.—Every weight, except weights of 10 g. and lower denominations shall have the manufacturer's name or trade mark indelibly cast or stamped on it.

The denominations shall be indicated in an indelible manner by the abbreviations “किलो” and “ग्राम” for kilogram; “ग्राम” and “मिलिग्राम” for gram; and “मिग्रा” and “मिलिग्राम” for milligram. The size of numerals and letters (letters need not be stamped on weights 50 mg. and below and on bullion weights with knobs of denominations 5 g. and below) indicating denominations of weights shall be at least twice the size of letters indicating the manufacturer's name or trade mark. The numerals used in the denominations shall be only international form of Indian numerals.

7. *Adjustments*.—The weights provided with loading holes shall be adjusted by pouring the required weighed quantity of molten lead into the loading hole and pressing the lead firmly. The approximate distance of the lead from the surface shall be not less than 20 per cent of the minimum thickness of the weight when new.

Part II.—Commercial Carat Weights.

1. *General*.—(a) This part prescribes the requirements for commercial metric carat weights intended for use in weighing pearls, diamonds and other precious stones.

(b) For easy calculation and convenience in use, a carat is sub-divided into 100 parts called cents. Thus, a cent equals 2 mg. Fractions of a carat are expressed with 100 as the denominator, the numerator representing the number of cents in the fraction; for example, 0.5 carat is designated as 50/100 carat.

2. *Denominations*—The denominations of the carat weights shall be as given below:—

(i) Knob Weights Denomination—

Carat.
(c).
500
200
100
50
20
10
5

(ii) Sheet Metal Weights Denomination—

Carat.
(c).
2
1
50/100
20/100
10/100
5/100
2/100
1/100
0.5/100

There shall be two weights each of the denominations 2, 20 or 200 and 2/100, 20/100 carats.

3. *Knob Weights*—(a) *Materials*.—The weights shall be made from rolled, drawn or extruded material and shall not be cast.

The weights shall be made from brass, bronze, nickel-silver, non-magnetic nickel-chromium or non-magnetic stainless steel.

TABLE 1.—Nominal dimensions of knob carat weights (All dimensions in mm.).

Denomination. (carat). (c).	A.	B.	C.	D.	E.	F.	G.	H.	K.
500	12	2.5	1.25	5.0	1.5	8.0	33.2	13.26	0.40
200	10	2.2	1.10	4.5	1.5	6.5	24.4	9.60	0.30
100	9	2.0	1.00	4.0	1.0	6.0	19.1	7.63	0.30
50	8	1.8	0.90	3.5	1.0	5.5	15.0	5.95	0.25
20	7	1.7	0.85	3.0	1.0	5.0	10.8	4.13	0.25
10	6	1.6	0.80	2.5	1.0	4.5	8.2	3.26	0.20
5	5	1.5	0.75	2.0	1.0	4.0	6.3	2.49	0.20

NOTE.—The above nominal dimensions are related to a material with a density of 8.4g/cm. 3. To take into account variations in materials and manufacturing practices, a tolerance of ± 5 per cent is permitted on the dimensions except on C, E and K.

(b) *Shape and dimensions*.—The shapes and dimensions of the weight shall be as shown in Fig. 1 and Table 1.

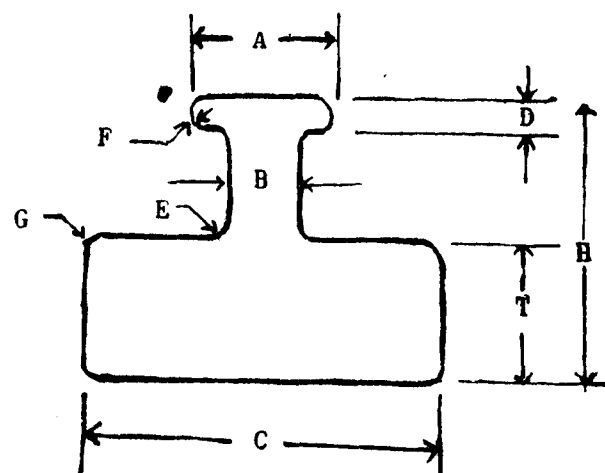
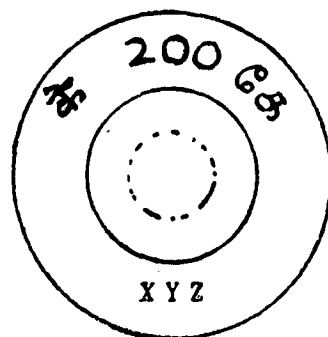


FIG. 1.—Carat weight (knob).

(c) Permissible errors—

Type of weights.	Denomination of commercial weights.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
Carat weights	500 c	+8.0	-4.0 to +8.0
	200 c	+6.0	-3.0 to +6.0
	100 c	+5.0	-2.5 to +5.0
	50 c	+4.0	-2.0 to +4.0
	20 c	+3.0	-1.5 to +3.0
	10 c	+2.0	-1.0 to +2.0
	5 c	+1.0	-0.5 to +1.0

4. *Sheet Metal Weights*—(a) *Materials*.—Weights of denominations 2/100 carat and below shall be made of aluminium sheet. Weights of higher denominations shall be made of sheets of brass, aluminium, nickel-silver, nickel-chromium or bronze.

(b) *Shape and dimensions*.—Sheet metal weights shall be square with a raised corner for easy handling (see Fig. 2). They shall have the dimensions given in Table 2.

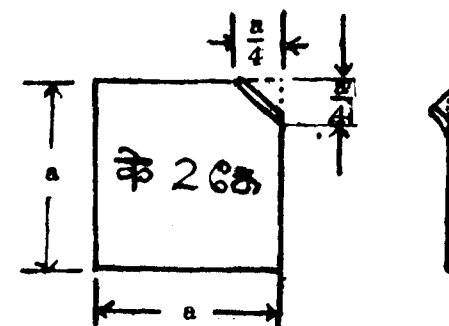


FIG. 2.—Sheet Metal carat weight.

TABLE 2.—Nominal dimensions of sheet metal carat weights.

Denominations. Carat (c).	Side. (a) mm.
2	12
1	10
50/100	9
20/100	8
10/100	7
5/100	6
2/100	5
1/100	4
0.5/100	3
Tolerance	± 10 per cent.

(c) Permissible errors—

Type of weights.	Denomination of commercial weights.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
Carat weights	2 c	+0.8	-0.4 to +0.8
	1 c	+0.6	-0.3 to +0.6
	50/100	+0.4	-0.2 to +0.4
	20/100 c	+0.2	-0.1 to +0.2
	10/100 c	+0.2	-0.1 to +0.2
	5/100 c	+0.1	-0.05 to +0.1
	2/100 c	+0.1	-0.05 to +0.1
	1/100 c	+0.1	-0.05 to +0.1
	0.5/100 c	+0.1	-0.05 to +0.1

5. *Manufacture and finish*.—(a) The surface of the weights shall be reasonably smooth. Sheet metal weights shall be smoothly sheared and shall be free from burrs.

(b) For better stability and finish, the weights may be nickel-chromium, gold-plated or rhodium-plated.

6. *Marking*—(a) Every weight, except weights of 50 carat and lower denominations, shall have the manufacturer's name or trade mark and the denomination indelibly stamped on it.

The denomination shall be marked in the international form of Indian numerals prefixed and suffixed by the letters 'c' and 'Gs' respectively, except that in the case of weights below 50 carats, only the numerals shall be marked. The size of the numerals and letters indicating denominations of weights shall be at least double the size of letters indicating the manufacturer's name or trade mark.

(b) The markings shall be legible and deep enough to ensure indelibility over a long period of use, but not so deep as to crack the weight itself.

PART III.—Commercial liquid capacity measures.

1. *General*.—(a) This part deals with two types of cylindrical liquid measures, namely, the dipping and the pouring types, and one type of conical measures.

2. *Denominations.*—The denominations of the different types of measures shall be as under :—

Cylindrical measures.		Conical measures.
Dipping type.	Pouring type.	
1 litre	2 litres ..	20 litres
500 ml	1 litre ..	10 litres
200 ml	500 ml ..	5 litres
100 ml	200 ml ..	2 litres
50 ml	100 ml ..	1 litre
20 ml	50 ml ..	500 ml
	20 ml ..	200 ml
		100 ml

3. *Shapes and dimensions.*—(a) The shapes and dimensions of cylindrical measures (dipping and pouring types) shall be as shown in Figures 1-A and 1-B and Table 11.

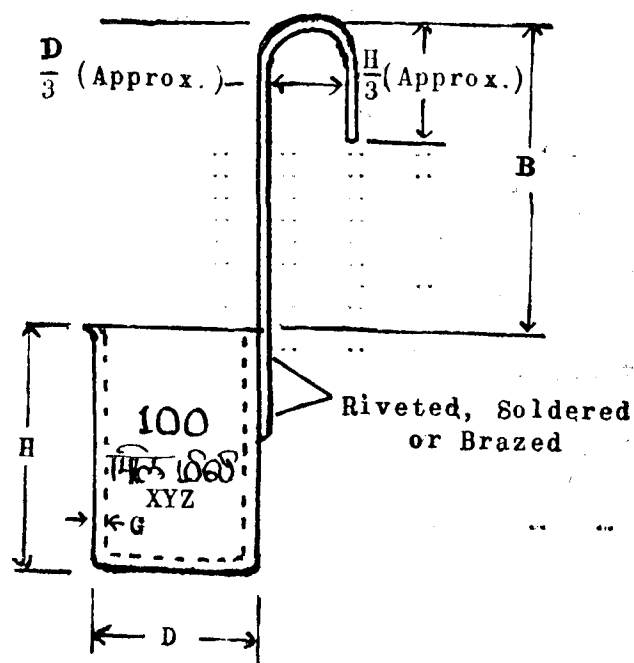


FIG. 1-A—Dipping type cylindrical Measure (Schematic).

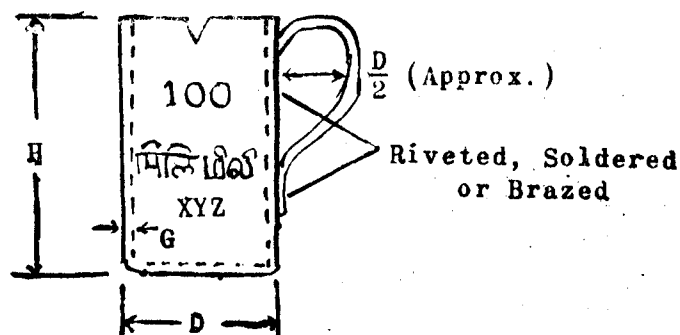


FIG. 1-B—Pouring type cylindrical Measures (Schematic).

TABLE 11.—Nominal dimensions of cylindrical capacity measures.

Denominations.	D	H	B Max.	B Min.	G Min.
2 litres	120	180	360	250	1.60
1 litre	95	142	254	210	1.60
500 ml	75	114	224	160	1.60
200 ml	55.5	83	166	120	1.25
100 ml	44	66	132	100	1.25
50 ml	35	52	104	80	1.25
20 ml	26	38	76	60	1.00

NOTES—(1) All dimensions in millimetres.

(2) Tolerance on dimensions ± 10 per cent.

(b) The shape and dimensions of conical measures shall be as shown in Figure 2 and Table 12.

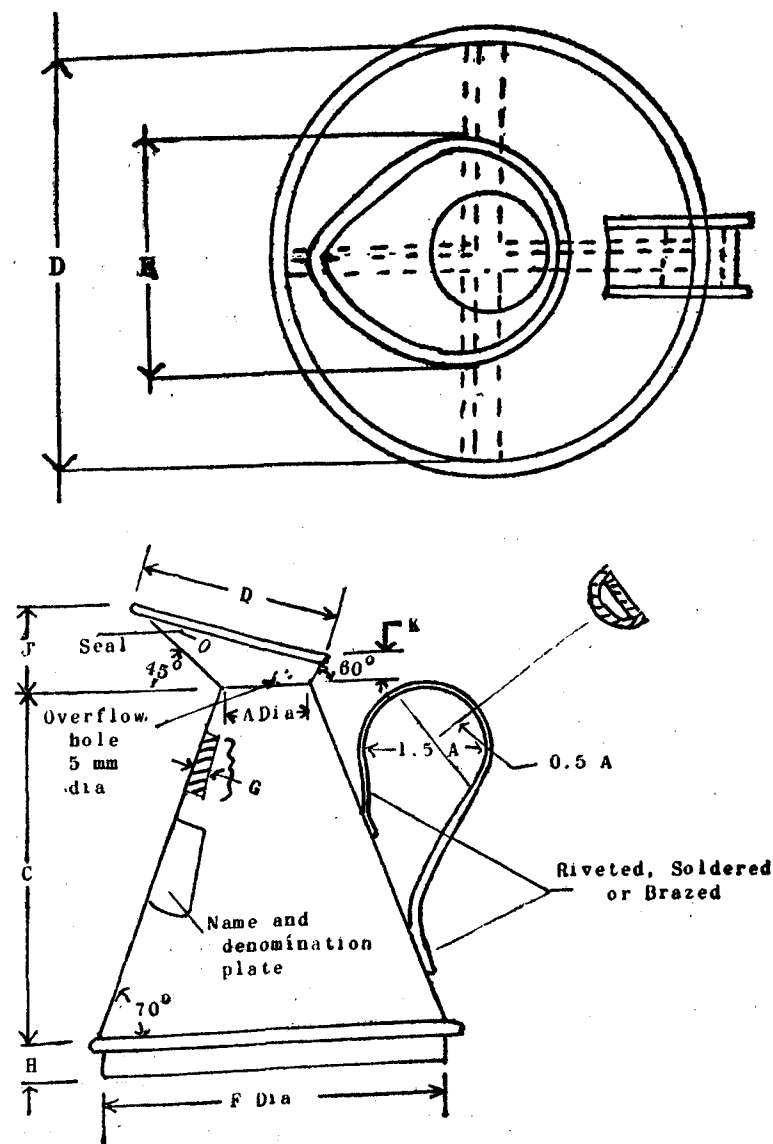


FIGURE 2.—Pouring type conical measures (Schematic)

TABLE 12.—Nominal dimensions of conical capacity measures.

Denominations.	A	B	C	D	E	F	G	H	J	K	M
(1)	(2)	(3)	(4)	(5)	(6)	(7)	Min. (8)	(9)	(10)	(11)	(12)
20 litres	97	388	388	208	194	390	1.00	35	86	29	30
10 litres	77	308	307	174	154	309	1.00	30	75	26	25
5 litres	61	244	245	147	122	247	0.800	25	65.5	24	20
2 litres	45	180	180	118	90	182	0.800	20	56	22	16
1 litre	36	143	143	95.5	72	145	0.630	20	45	18	16
500 ml	28	114	113	74	56	115	0.630	15	35	14	12
200 ml	21	84	84	53	42	86	0.630	10	24.5	10	8
100 ml	17	66	67	41	34	69	0.630	10	18.5	7	8

NOTES—(1) All dimensions in millimetres.

(2) Tolerance on dimensions ± 10 per cent except in case of 10 litre and 20 litre measures for which the tolerance shall be ± 5 per cent.

4. *Materials*—(a) *Cylindrical measures*.—(i) The body of cylindrical measures shall be manufactured in one piece from aluminium alloy sheets, brass sheets or stainless steel sheets.

(ii) The minimum thickness of the sheets shall be as specified in Table 11.

(b) *Conical measures*.—The conical measures shall be fabricated from galvanised steel sheets, aluminium alloy sheets, copper sheets, brass sheets, stainless steel sheets or tin-plate, as may be specified by the purchaser. The minimum thickness of the sheets shall be as specified in Table 12.

(c) The handles for the measures shall be fabricated from the same material as that used for the body.

5. *Manufacture and finish*.—(a) Cylindrical measures made of brass sheets and copper sheets shall be well-tinned or tin-plated uniformly all over the inside as well as the outside surfaces. Conical measures made of brass sheets or copper sheets shall be well-tinned or tin-plated uniformly all over the inside when they are used for measuring commodities like milk, edible oils and such other food articles.

(b) The handles shall be of robust construction and shall be wellformed and shaped generally as shown in Figures 1 and 2. They shall be securely fixed to the body by means of rivetting, soldering or brazing.

(c) The measures shall be free from any surface defects and indentations and shall be smoothly finished at the top.

(d) Cylindrical measures shall be provided with a well-formed and proportioned spout to facilitate pouring.

(e) Conical measures shall be provided with a retaining lip to avoid spilling. The retaining lip shall be provided with a brass plug with a collar to receive the lead for the Inspector's seal. A small hole, about 5 mm. in diameter, shall be provided at the bottom of the retaining lip to indicate the level to which the measure shall be filled and the hole shall be located on the side at right angle to the handle. The bottom of conical measures shall be suitably reinforced.

(f) The measures shall be so designed that, when they are tilted 120 degrees from the vertical, they shall become completely empty.

(g) The finished measures shall have adequate robustness for durability.

NOTE I.—Capacity measures when used for measuring milk shall have the handle fixed by welding, soldering or brazing so as not to leave pockets in which dirt may accumulate.

NOTE II.—Dipping type cylindrical measures may also have handles substituted by two suitable but diagonally opposite brackets affixed to the walls of the measure by means of soldering, brazing or welding so as to hold the measure properly by a handle at right angles to the walls of the measure to facilitate its use in hot and boiled milk trade.

6. Permissible errors—

Type of liquid capacity measure.	Denomination of commercial capacity measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
(1)	(2)	(3)	(4)
		ml.	ml.
Cylindrical measures	2 l 1 l 500 ml 200 ml 100 ml 50 ml 20 ml	+ 30 + 20 + 15 + 8 + 5 + 3 + 2	— 15 to + 30 — 10 to + 20 — 7.5 to + 15 — 4 to + 8 — 2.5 to + 5 — 1.5 to + 3 — 1 to + 2
Conical measures	20 l 10 l 5 l 2 l 1 l 500 ml 200 ml 100 ml	+ 100 + 50 + 30 + 15 + 10 + 8 + 4 + 3	— 50 to + 100 — 25 to + 50 — 15 to + 30 — 7.5 to + 15 — 5 to + 10 — 4 to + 8 — 2 to + 4 — 1.5 to + 3

7. *Marking*.—(a) Every cylindrical measure shall have the denomination and manufacturer's name or trade mark indelibly stamped on it. In the case of conical measures, the denomination and manufacturer's name or trade mark shall be either embossed on the body or indelibly marked on a name plate securely fixed to the body.

(b) The denominations shall be indicated with the abbreviations “लि” and “एल” for litre; and “मिलि” and “मिली” for millilitre. The size of numerals and letters indicating denominations on the measures shall be twice the size of the letters indicating the manufacturer's name or trade mark.

PART IV.—Special measure for Petroleum products.

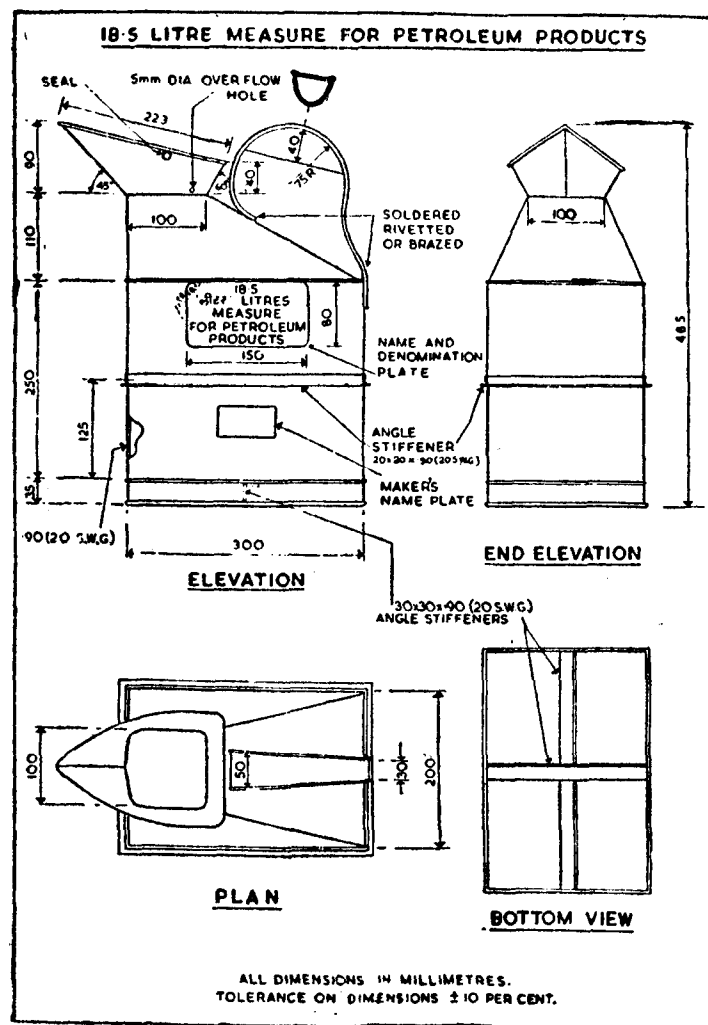
1. *General*.—The part deals with a special capacity measure which may be used for petroleum products, in addition to the conical measures prescribed in Part III of this Schedule. This measure shall not be used for any other commodity.

2. *Denomination*.—The special measure shall have a capacity of 18.5 litres.

3. *Shape and dimensions*.—The shape and dimensions of the special measure shall be as indicated in Figure I.

4. *Materials*.—The measure shall be fabricated from galvanised steel sheets, aluminium alloy sheets, copper sheets, brass sheets, stainless steel sheets or tin plates. The minimum thickness of the sheet shall be as indicated in Figure I. The handle shall be fabricated from the same material as that used for the body.

Type of liquid capacity measure.	Denomination of commercial capacity measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
(1)	(2)	(3)	(4)
		ml.	ml.
Special measures	18.5 l	+ 100	— 50 to + 100



PART V.—Dispensing measures.

1. *General.*—This part deals with two types of dispensing measures made of glass and transparent and plastic materials used for dispensing purposes. Conical dispensing measures of capacity 100 ml. may also be used in the sale of 'Liquor'.

2. *Types and denominations.*—Dispensing measures shall be of the following types of denominations—

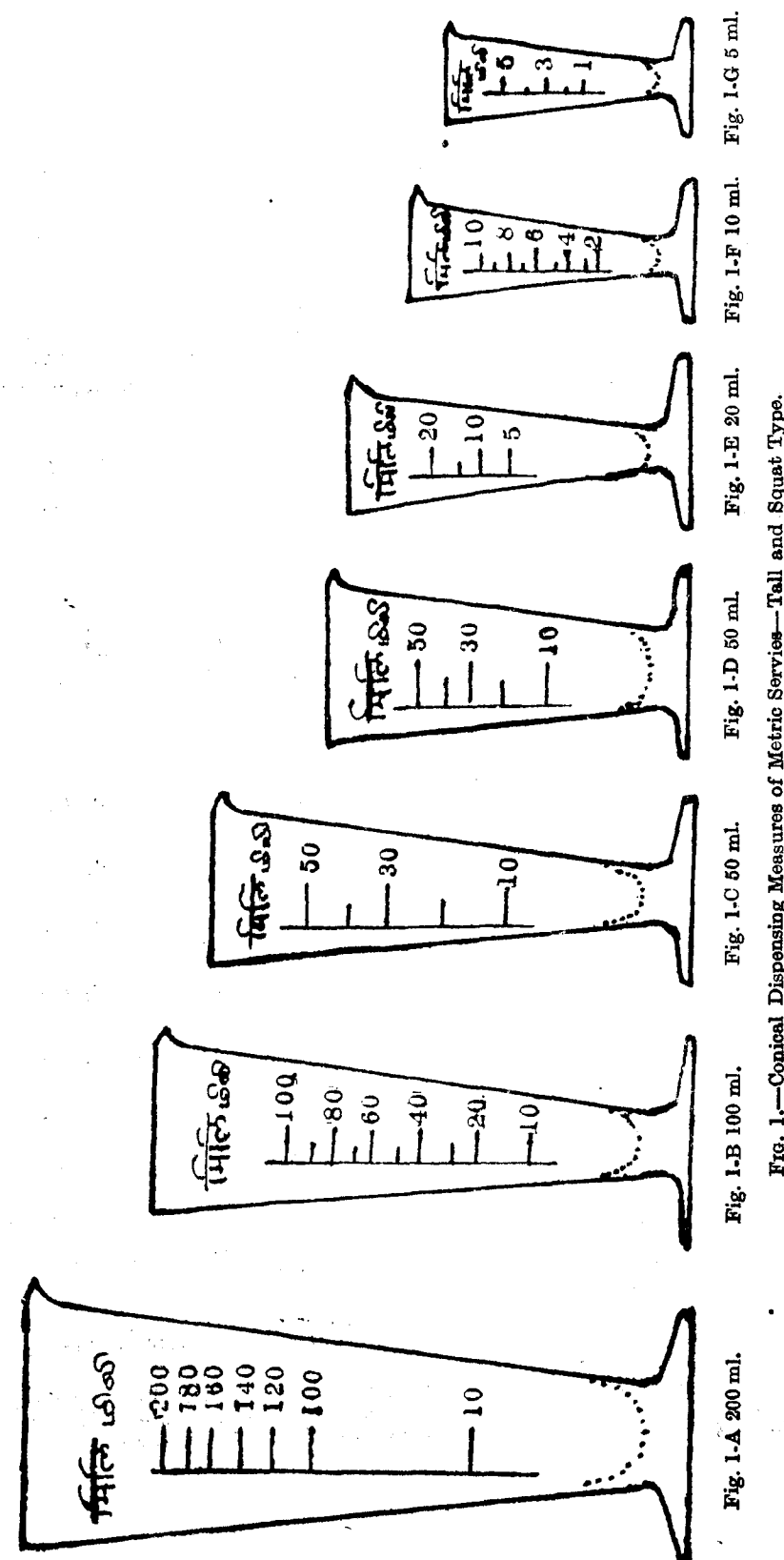
- (a) Conical measures—200 ml., 100 ml., 50 ml., 20 ml., 10 ml. and 5 ml.
- (b) Beaker measures—1,000 ml. and 500 ml.

3. *Materials.*—(a) *Glass measures.*—The measures shall be made of clear and transparent glass. They shall be well-annealed; free from stones, cracks and chippings; and as free as possible from blisters and other defects. Lead glass shall not be used for the measures.

(b) *Transparent plastic measures.*—The measures shall be made of a clear and transparent plastic material manufactured from plastical polyvinyl chloride or copolymer, the major constituent of which is polyvinyl chloride. The plastic material used shall not contain any constituents known to be injurious to health and likely to be extracted by contact with liquids.

4. *Definition of capacity.*—The capacity corresponding to any graduation mark is defined as the volume of water at 27° C, expressed in millilitres required to fill the measure to that graduation mark at 27° C, the observer's eye being level with the front graduation mark and the lowest point of the water meniscus appearing to touch the top edge of that mark.

5. *Conical measures.*—(a) *Shape.*—The measures shall be conical as shown in figs. 1-A to 1-G; the 50 ml. measures shall be either tall or squat as shown in figs. 1-C and 1-D respectively.



(b) *Construction.*—(i) Each measure shall have a pouring lip. The form of the lip shall be such that, when the measure is filled with water to the highest graduation mark, the contents may be poured from the lip in a stream falling clear outside the measures.

(ii) Each measure shall have a base on which it shall stand vertically without rocking when placed on a horizontal surface. The size of the base shall be such that the measure, when empty, shall not fall when placed on a plane inclined at 15° to the horizontal. The bottom of the measuring space, shall be uniformly rounded and shall merge smoothly into the sides of the measure.

(iii) The wall thickness of the measures shall be sufficient to ensure sturdy construction and shall not show any local departures from uniformity.

(iv) The external surface of the measure shall be a cone having an included angle of not less than 13° and not more than 14°.

(v) The overall volume of the measure shall be such that when it is filled with water to the highest graduation mark and a volume of water equal to half its nominal capacity is added to it, there shall be no overflow. But, the addition of a further quantity of water equal to quarter the nominal capacity shall result in water overflowing from the pouring lip.

(c) *Graduation.*—(i) The conical measures shall be graduated in accordance with Table 1.

TABLE 1.—Details of conical measures.

Denomination.	Graduated at.	Numbered at.	Back lines at.	Lowest graduation mark.	Height of lowest graduation mark above bottom of measuring space.	Minimum length of mar.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
ml	ml	ml	ml	ml	ml	ml
200	50, 100, 120, 140, 160, 180, 200.	50, 100, 120, 140, 160, 180, 200.	50, 100, 200.	50	6.5 ± 0.5	2.0
100	Every 10 ml. from 10 to 100 ml.	10, 20, 40, 60, 80, 100.	20, 60, 100.	10	3.0 ± 0.5	1.75
50 (tall).	Every 10 ml. from 10 to 50 ml.	10, 30, 50.	30, 50.	10	4.0 ± 0.5	1.5
50 (squat).	Every 10 ml. from 10 to 50 ml.	10, 30, 50	30, 50	10	2.0 ± 0.5	1.5
20	Every 5 ml. from 5 to 20 ml.	5, 10, 20	10, 20	5	2.5 ± 0.5	1.25
10	Every ml. from 2 to 10 ml.	2, 4, 6, 8, 10	2, 6, 10	2	2.5 ± 0.5	1.0
5	Every ml. from 1 to 5 ml.	1, 3, 5	3, 5	1	2.5 ± 0.5	0.75

(ii) With the pouring lip of measure facing to the right, the front graduation marks shall be placed at right angles to, and on the right hand side of a vertical line extending from above the top graduation mark to near the base of the measure and below the bottom graduation mark.

(iii) The graduation marks shall be marked as shown in figures 1-A to 1-G. The marks shall be engraved or etched and they shall be of a uniform thickness not exceeding 0.3 mm., provided that they may taper slightly towards the ends. The graduation marks shall lie in planes perpendicular to the axis of the measure and shall be horizontal when the measure is standing on a horizontal surface.

(iv) Each graduation number shall be etched or engraved close to the end of the graduation marks to which it relates and in such a manner that it would be bisected by a prolongation of that graduation mark.

(v) The numbered graduation marks shall have the minimum length specified in column (7) of Table 1. The unnumbered graduation mark shall be at least two-thirds the length of the numbered graduation marks and clearly shorter than the numbered marks.

(vi) The height of the lowest graduation mark above the lowest point of the bottom of the measuring space shall be within the limits given in column (6) of Table 1.

(d) *Permissible errors.*—The permissible errors in capacity shall not exceed the figures given below (see Table 2). The permissible errors in excess or deficiency shall be the same for verification or inspection.

TABLE 2.—Permissible errors in capacity of conical measures.

Capacity corresponding to graduation mark.	Permissible error for measures except 50 ml. (squat).	Permissible error for 50 ml. (squat) measures.
ml	ml	ml
200, 180, 160	 +3.0 to -3.0	.. .. .
140, 120, 100	 +2.0 to -2.0	.. .. .
90, 80, 70, 60	 +1.5 to -1.5	.. .. .
50, 40	 +1.0 to -1.0	.. .. .
30	 +0.8 to -0.8	+1.0 to -1.0.
20	 +0.6 to -0.6	+1.0 to -1.0.
15	 +0.5 to -0.5	+0.8 to -0.8.
10, 9	 +0.4 to -0.4	.. .. .
8, 7, 6	 +0.3 to -0.3	+0.6 to -0.6.
5	 +0.25 to -0.25	.. .. .
4	 +0.20 to -0.20	.. .. .
3	 +0.16 to -0.16	.. .. .
2	 +0.12 to -0.12	.. .. .
1	 +0.08 to -0.08	.. .. .

NOTE.—The permissible errors, apart from those of the 50 ml. (squat) measure, apply to graduation marks corresponding to the capacities stated, irrespective of the nominal capacity of the conical measure concerned.

6. *Beaker measures.*—(a) *Shape.*—The measures shall be in the form shown in figs. 2-A and 2-B.

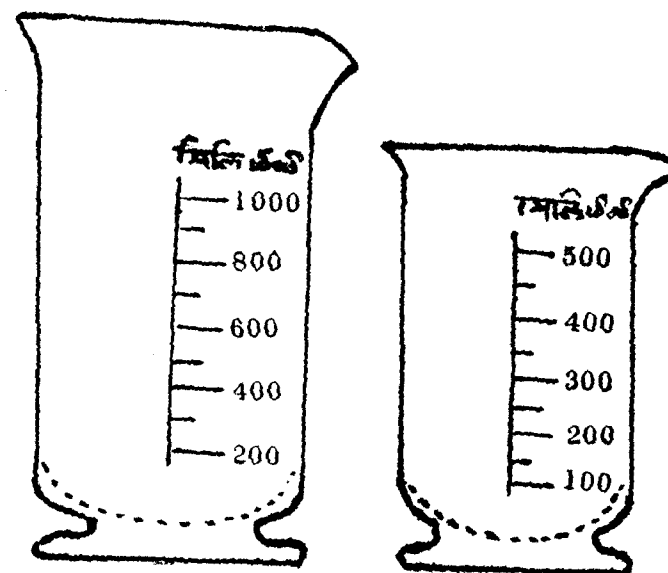


Fig. 2A 1000 ml.

Fig. 2B 500 ml.

FIG. 2. Beaker measures of metric series.

(b) *Construction.*—(i) Each measure shall be provided with a pouring lip. The form of the lip shall be such that, when the measure is filled with water to the highest graduation mark, the contents may be poured from the lip in a stream falling clear of the outside of the measure.

(ii) Each measure shall be provided with a base on which it shall stand vertically without rocking when placed on a horizontal surface. The size of the base shall be such that the measure when empty, shall not fall when placed on a plane inclined at 15° to the horizontal. The bottom of the measuring space shall be uniformly rounded and shall merge smoothly into the sides of the measure.

(iii) The overall volume of the measure shall be such that when the measure is filled with water to the highest graduation mark and a volume of water equal to quarter the denomination volume is added to it, the water shall not overflow.

(c) *Graduation.*—(i) The graduation marks shall be marked as shown in figures 2-A and 2-B and Table 3. The marks shall be etched or engraved and shall be of a uniform thickness not exceeding 0.3 mm. provided that they may taper slightly towards the ends. The graduation marks shall lie in places perpendicular to the axis of the measure and shall be horizontal when the measure is standing on a horizontal surface.

(ii) Each graduation number shall be etched or engraved close to the end of the graduation mark to which it relates and in such a manner that it would be bisected by a prolongation of that graduation mark.

(iii) The distance between the highest and the lowest graduation marks and the height of the lowest graduation mark above the inside of the base of the measure shall be in accordance with columns (3) and (4) respectively of Table 3.

TABLE 3.—Graduation and dimension of beaker measures.

Denomination.	Graduation at.	Distance between lowest and highest graduation marks.	Height of lowest graduation mark above bottom of measuring surface.	Diameter of top.	Minimum diameter of base.	Overall height.
(1)	(2)	(3)	(4)	(5)*	(6)*	(7)*
ml		cm	cm	cm	cm	cm
1,000	200 to 1,000 ml. at each 100 ml; numbered at each 200 ml.; un-numbered back lines at 200, 600 and 1,000 ml.	11 ± 1	4 ± 1	12	9	23
500	100 to 500 ml. at each 50 ml.; numbered at each 100 ml.; un-numbered back lines at 100, 300 and 500 ml.	9 ± 0.5	3 ± 0.5	10	8	18

*These are only recommendatory.

(d) *Permissible errors.*—For beaker measures presented for checking and stamping, the permissible errors shall not exceed +7 to -7 ml. for 1,000 ml. measures and +5 to -5 ml. for 500 ml. measures.

7. *Markings.*—Each measure shall have permanently and legibly engraved or etched on it its denomination in international form of Indian Numerals, the abbreviations “मिल” and “ml” being used to indicate milli-litres. The manufacturers' name or trade mark shall be marked on the underside of the base of each measure.

PART IV.—Special measures for liquor.

1. *General.*—This part deals with special measures which may be used in transactions in liquor.

2. *Beaker measure.*—(a) *Material.*—The measure shall be made of glass.

(b) *Denomination and graduation.*—It shall be of the denomination of 300 ml. It shall have graduation marks at 100 ml., 120 ml., 150 ml., 180 ml., 200 ml., 250 ml., and 300 ml.

(c) *Permissible errors.*—The permissible errors shall be as follows :—

Graduation mark.	Permissible error (verification and inspection).
300, 250, 200, 180, 150	+3 to -3
120, 100	+2 to -2

3. *Peg measures.*—(a) Peg measures may be of the denominations 60 ml. and 30 ml.

(b) *Permissible errors.*—The permissible errors shall be as follows :—

Denomination of commercial capacity measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
60 ml	+2 to -2	-2 to +2
30 ml	+1 to -1	-1 to +1

PART VII.—Commercial length measures (non-flexible).

1. *General.*—This part deals with the non-flexible type of Commercial length measures made of metal or wood.

2. *Denominations.*—The denominations of the length measures shall be as follows :—

Metallic measures.

1 m

0.5 m

Wooden measures.

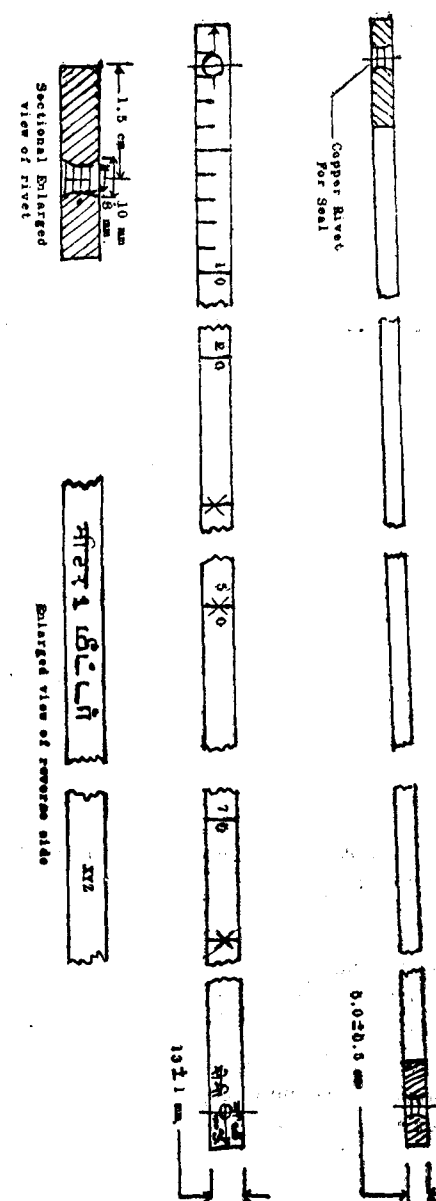
2 m

1 m

0.5 m

3. *Metallic measures.*—(a) *Materials.*—The measures shall be made from mild steel or brass or from stainless steel.

(b) *Shape and dimensions.*—The shape and dimensions of the measures shall be as shown in Figure 1.



(c) *Graduation*.—(i) The graduation marks shall be made at every centimetre, or at every centimetre for the first ten centimetres and thereafter at every five centimetres. The graduation marks at every ten centimetres shall be numbered. The marks at the centimetre divisions shall extend over half the breadth and those at five centimetres divisions over the full breadth of the measures. A cross mark shall be provided at 25 centimetres in the case of 0.5 m. measures and at 25, 50 and 75 cm. in the case of 1 m. measure (See Figure 1).

(ii) The graduation shall be only on one side of the measure.

(d) *Permissible errors*.—

Type of length measures.	Denomination of Commercial Length measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
(1)	(2)	(3)	(4)
	m	mm	mm
Metallic measures	1	+1.0 to -0.5	+1.0 to -1.0
	0.5	+0.5 to -0.25	+0.5 to -0.5

The distance between consecutive five centimetre marks shall not have errors positive or negative exceeding 0.25 mm. The error on the full length of the measure, or on the length from zero graduation to any other graduation, shall not exceed ± 1.0 mm.

(e) *Provision for stamping*.—The measures shall be provided with a copper rivet near each end (see Figure 1) firmly fixed in a hole countersunk on both sides, for the Inspector's stamp. An arrow head shall be marked at each end of the measure to provide the points for checking the length.

4. *Wooden measures*.—(a) *Materials*.—The measure shall be made from well-seasoned timber of any one of the following species:—

- (i) Teak (*Tectona gravis* Linn.f).
- (ii) Rosewood (*Dalbergia Latifolia* Roxb).
- (iii) Shisham (*Dalbergia sissoo* Roxb).
- (iv) Haldu (*Adhina cordifolia* Hook f.).
- (v) Bijasal (*Pterocarpus maruspium* Roxb).
- (vi) Boxwood (*Buxus sempervirens*).
- (vii) Beech (*Fagus sylvatica*).

(b) The shape and dimensions of the measures shall be as shown in Figure 2.

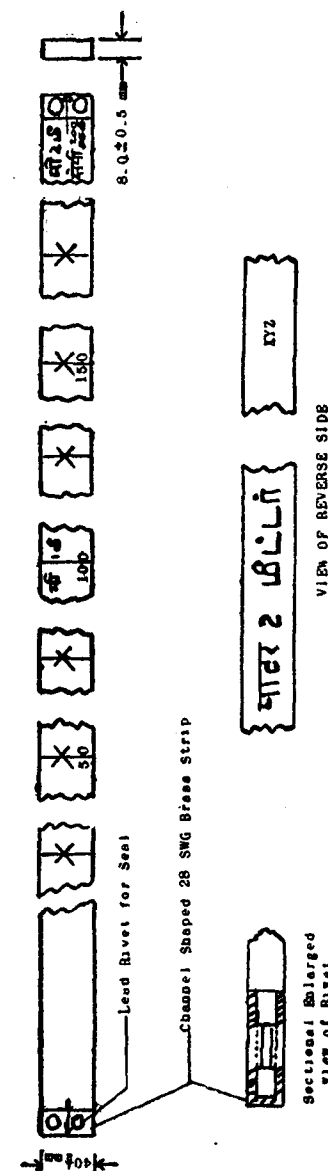


FIG. 2.—Wooden measure.

(c) *Graduation*.—The graduation marks shall be made at every centimetre or at every centimetre for the first ten centimetres and thereafter at every five centimetres. The graduation mark at every ten centimetres shall be numbered. The marks at the centimetres division shall extend over half the breadth and those at the five centimetre divisions over the full breadth of the measures. A cross mark shall be provided at every 25 cm. excluding the one metre and two metre graduations (see Fig. 2).

The graduation shall be on one side of the measures only.

(d) *Permissible errors*—

Type of length measures.	Denomination of commercial length measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
(1)	(2)	(3)	(4)
	m	mm	mm
Wooden measures	2	+4 to -2	+4 to -4
	1	+2 to -1	+2 to -2
	0.5	+1 to -0.5	+1 to -1

The distance between consecutive five centimetre marks shall not have errors positive or negative exceeding 1 mm. The error on the full length of the measure, or on the length from zero graduation to any other graduation shall not exceed ± 2 mm.

(e) *Provision for stamping*.—Each measure shall be provided at each end with a metal tip not less than 1 cm. in width, securely rivetted with two rivets at each end, as shown in Figure 2, for receiving the Inspector's stamp. The width of the tips shall be included in the total length of the measures.

5. *Manufacture and finish*.—(a) The measure shall be evenly finished and shall be reasonably straight.

(b) In the case of metallic measures, the graduation marks and the cross marks shall be legible and deep enough to ensure indelibility over a reasonably long period of use, but not so deep as to make the measures liable to be easily bent. In the case of wooden measures, the marking shall be finished neatly, sharply and legibly, in a colour contrasting with the wood finish. They shall be visible from a distance and shall remain indelible over a reasonably long period of use.

6. *Markings*.—(i) The denomination shall be stamped, on the un-graduated side of the measure at about one-third of the total length from the beginning of the measure and the manufacturer's name or trade mark at a similar distance from the end of the measure. In the case of wooden measures, the markings shall be finished in the same manner as the graduation.

(ii) In indicating the denominations the numerals shall be preceded by the word "मीटर" and followed by "सेन्टीमीटर". The size of numerals and letters indicating denominations of the measures, shall be twice that of the letters indicating the manufacturer's name or trade marks.

PART VIII.—Commercial Folding Scales.

1. *General*.—This part deals with wooden folding scales.

2. *Denominations*.—The denominations of folding scales shall be—
1 m and 0.5 m.

3. *Materials*.—(a) The scales shall be made from strips or sheets of wood. They shall be uniform in width and thickness throughout the entire length.

(b) The scales shall be made of any one of the following species of timbers :—

- (i) Boxwood (*Buxus sempervirens*).
- (ii) Gardenia (*Gardenia* sP).
- (iii) Parrotia (*Parrotia jacquemontiana* *Randia Dumetorum*).
- (iv) Dudhi (*Wrightia* sP).
- (v) Bamboo.
- (vi) Haldu (*Adina cordifolia* Hook.f.)
- (vii) Kalam (*Mitragyna parvifolia* Korth).
- (viii) Kuthan (*Hymenodictyon excelsum* Wall).
- (ix) Gamari (*Gmelina arorea* Linn).

(c) The timber shall be thoroughly seasoned and radially sawn. The moisture content of the timber shall be between 8 and 12 per cent. The timber shall be free from knots, cracks, sap wood, shakes and other visible defects such as decay, insect attack, etc., and shall be fairly straight-grained.

4. *Manufacture*.—(a) *General*.—The scales shall be straight and flat, the edges parallel to each other and the ends square.

(b) No point on any of the edges shall be more than 0.5 mm. distant from the straight line connecting its extremities. No point on the surface of a scale shall be more than 0.5 mm. distant from the plane of the surface.

(c) The scales shall consist of four pieces hinged together and it shall be an end measuring scale. The joints shall work smoothly without undue play and shall be sufficiently free from the folds to be opened and closed without strain. The brass caps shall be closely fitted and strongly secured to the blades. They shall be made flush with the sides of the scales.

5. *Dimensions*.—The principal dimensions of the scale blanks shall be as follows :—

Length of graduated part. m.	Overall length.		Width.		Thickness. mm.
	Max.	Min.	Max.	Min.	
	mm.	mm.	mm.	mm.	
0.5	500	..	15.0	14.5	4 + 1
1	1,000	..	20.0	19.0	5 + 1

6. *Graduations*.—(a) Graduation marks shall be made at every milli-metre with a longer line at every 5 mm. and centimetre.

The length of the graduation lines shall be as follows :—

- cm. mark 6 mm.
- 5 mm. mark 4 mm.
- 1 mm. mark 2.5 mm.

(b) The lines shall be fine and clear, of uniform depth and thickness, and perpendicular to the edges. The thickness of lines shall be not more than 0.2 mm. for stamped scales and 0.1 mm. for machine divided scales. The lines shall be of sufficient depth to be legible and indelible.

(c) The lines shall be filled in black on natural background or with a suitable colour which shall contrast with the colour of the base to ensure legibility.

(d) Every centimetre shall be numbered in international form of Indian numerals. The height of the figures shall be between 2.0 and 2.5 mm.

7. *Permissible error*—

Type of length measures.	Denomination of commercial length measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
(1)	(2)	(3)	(4)
	m	mm	mm
Folding scale	1	+ 0.50 to - 0.50	+ 0.50 to - 0.50
	0.5	+ 0.50 to - 0.50	+ 0.50 to - 0.50

In addition, error not to exceed + 0.25 to - 0.25 mm. over any 10 cm. length of scale.

8. *Marking*.—(a) The denomination shall be stamped on the ungraduated side of the measure at a distance about one-third of the total length from the beginning of the measure. The manufacturer's name or trade mark shall be marked at the same distance from the end of the measure. The markings shall be finished in the same manner as the graduations.

(b) In indicating the denominations the numerals shall be preceded by the word "मीटर" and followed by the word "सेन्टीमीटर". The size of numerals and letters, indicating denominations of the measures shall be twice that of the letters indicating the manufacturer's name or trade mark.

9. *Provision for stamping*.—The measure shall receive the Inspector's stamp either on the metal strip at the ends of the central hinges as may be convenient.

PART IX—Woven metallic tape measures.

1. Woven metallic tape measures may be used where the use of rigid measures is not convenient or practicable.

2. *Denominations.*—The tape measures shall be made in lengths of 2, 5, 10, 15, 20, 30, or 50 metres.

3. *Tape.*—(a) *Materials.*—(i) The tape shall be of yarn and metal wire in the warp and only yarn in the weft.

(ii) The yarn shall be spun from good quality cotton or linen and shall be either bleached or mercerized. The yarn used shall be of 20 count (17 French count) in the warp and 40 count (34 French count) in the weft.

(iii) The wire shall be of phosphor bronze, copper or stainless steel and shall be 0.16 mm. in diameter.

(b) *Weave.*—(i) The weave shall be either plain, that is one up and one down, or dosuti, that is, two up and two down, with at least eight wires uniformly spaced in the warp.

(ii) The total number of warp threads, including wire threads, shall be in the full width of the tape. The picks per centimetre shall be 16 in the case of cotton yarn and 13 in the case of linen yarn.

4. *Manufacture.*—(a) The tape shall be coated with a suitable primer of synthetic material over which one or more coats of a flexible, high quality enamel shall be given. The final top coat shall be of a varnish which shall give the tape a good finish. All coatings shall be non-cracking and water resistant.

(b) A metal ring shall be attached to the outer end of tapes of denominations 10, 15, 20, 30 and 50 metres, the ring being fastened to the tape by a metal strip of the same width as the tape for protection and for receiving the Inspector's stamp. (See Figure 1.)

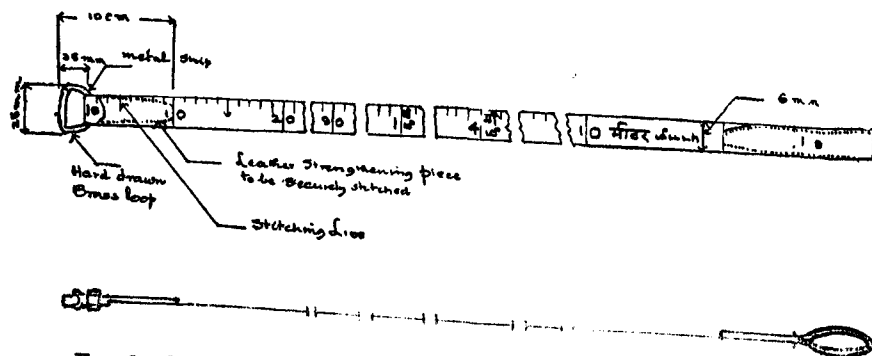


FIG. 1.—Woven metallic tape measures—10, 15, 20, 30 and 50 metres.

(c) (i) The outer end of tapes of denominations 10, 15, 20, 30 and 50 metres shall be reinforced over a length of not less than 10 cm. by a strip of leather or suitable plastic material of the same width as the tape. The leather or plastic strip shall also pass around the ring and under the metal strip. (See Figure 1.)

(ii) Tapes of 2 and 5 metre denominations shall be reinforced over a length of not less than 10 cm. by a strip of cotton fabric or suitable plastic material, over which a strip of brass stamp. (See Figure 2.)

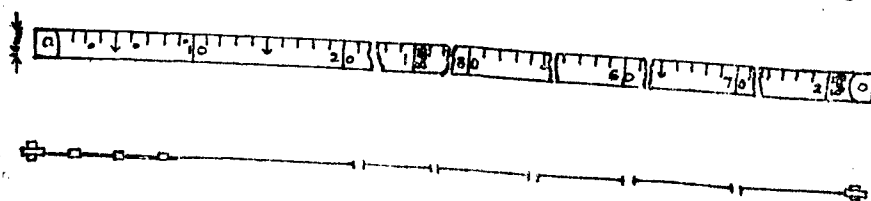


FIG. 2.—Woven metallic tape measures—2 and 5 metres.

5. *Graduations.*—(a) The length of the tape shall include the metal finger ring, when provided.

(b) At every centimetre a black line, 8 to 10 mm. in height, shall be drawn and every five centimetres shall be marked with an arrow in black. Every 10th cm. and every metre shall be marked a black line extending over the full width of the tape (i.e., 16 mm.). The graduation marks at every 10th cm. and every metre shall be numbered with black and red figures, respectively. The metre markings shall, in addition contain the letters 'मी' and 'म' and the end of the tape shall be marked 'मीटर' and 'मूल' . The graduation shall be only on one side of the tape.

Permissible errors.—Woven metallic tape (tested on a horizontal surface under a tension of one kilogram) measures.

Type of length measures.	Denomination of commercial length measures.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purposes.
	m	mm	mm
Woven metallic tape ..	50	+ 20.0 to - 20.0	+ 20.0 to - 20.0
	30	+ 15.0 to - 15.0	+ 15.0 to - 15.0
	20	+ 10.0 to - 10.0	+ 10.0 to - 10.0
	15	+ 7.5 to - 7.5	+ 7.5 to - 7.5
	10	+ 5.0 to - 5.0	+ 5.0 to - 5.0
	5	+ 3.0 to - 3.0	+ 3.0 to - 3.0
	2	+ 1.5 to - 1.5	+ 1.5 to - 1.5

(c) In addition, in 20, 30 and 50 m. tapes, the errors from the beginning of the tape to the lengths specified below shall not exceed the following limits.

Length.	Permissible error verification and inspection.
m	mm
10	+ 10 to - 10
15	+ 12.5 to - 12.5
20	+ 15 to - 15
30	+ 20 to - 20

6. *Marking.*—On the ungraduated side and also on the case of each tape when provided, the name of the manufacturer or his registered trade mark and the denomination shall be legibly marked in English or Devanagiri or in both.

7. *Provision for stamping.*—Measures shall be stamped on the metal strip at the beginning of the scale on the graduated side.

PART X.—Steel tape measures (winding type).

1. *Denominations.*—The denominations of the tape measures shall be 1, 2, 10, 15, 20, 30 and 50 metres.

2. *Tape.*—(a) Tapes shall be of steel or stainless steel and may be of the following dimensions:—

Width.	Tolerance.	Corresponding thickness.	Tolerance.
mm	mm	mm	mm
16.0	± 0.5	0.40	± 0.05
13.0		0.40	
9.5		0.40	
6.0		0.15	

(b) The tape shall be of such a quality that when it is wound once round a rod of the diameter indicated below and then released, there shall be no permanent deformation in the tape.

Thickness of tape.	Diameter of rod.
mm.	mm.
0.15	12
0.40	25

(c) The tapes of widths 16.0, 13.0 and 9.5 mm. shall be curved or flat. Tapes of 6.00 mm. width shall be flat.

(d) The edges of the tapes shall be slightly rounded. The tapes shall be well-polished or provided with a rust-proof coating and shall be free from burrs.

(e) The outer end of the tapes shall be provided with a ring or other device for facilitating withdrawal. The ring or other device shall be fastened to the tape by a metal strip of the same width as the tape.

3. *Graduations.*—(a) The length of the tape shall include the metal finger ring, when provided.

(b) The tape shall be graduated at intervals of 1 mm. along the first 10 cm. of its length, and at intervals of 5 mm. over the remaining part. The height of the graduation marks shall be as follows :—

Unit.	Minimum height of marking.
	mm.
Millimetre	2
Five millimetres	3
Centimetre	4
Metre	Full width of the tape.

(c) Every 10 cm. and metre shall be marked with international form of Indian numerals in bold type. The metre divisions shall, in addition, bear the designation 'म' and 'द' Every centimetre in the first 10th cm. shall also be marked with international form of Indian numerals. The end of tape measures of denominations 10, 15, 20, 30 and 50 metres shall be marked with the words 'मीटर' and 'दिल्ल' (See figure 1).



Fig. 1.—Steel tape measures—10, 15, 20, 30 and 50 metres.

4. Permissible errors—

Length.	Permissible error (verification and inspection).
Steel tapes	(Tested on horizontal surface with a tension of 5 kg. for 50, 30, 20, 15 and 10 m. tapes and 2 kg. for 2 m. and 1 m. tapes. Permissible errors are the same for verification and inspection.)
m.	
50	Error between any two adjacent mm. lines or between consecutive cm. lines not to exceed + 0.2 to - 0.2 mm. and between consecutive 10 cm. lines or metre lines not to exceed + 0.4 to - 0.4 mm.
30	
20	
15	
10	
2	
1	

In addition, when measured from zero to the points specified below, the error in the length of the tape shall not exceed the following limits :—

Mark.	Permissible error (verification and inspection).
m	mm
1	+ 0.4 to - 0.4.
2	+ 0.6 to - 0.6
5	+ 1.0 to - 1.0
Any metre mark beyond the first 5 metres.	+ 1.0 to - 1.0 mm. for the first 5 metres.
	+ 0.5 to - 0.5 mm. for each additional 5 mm. or part thereof.

5. *Marking.*—On the ungraduated side and on the case of each tape, the name or trade mark of the manufacturer and the denomination shall be legibly marked in English or Devanagiri or in both. In addition, the direction of winding shall also be legibly marked on the case.

6. *Provision for stamping.*—Measures shall be stamped near the beginning of the scale on the graduated side.

PART XI.—Surveying chains.

1. *General.*—This part prescribes the requirements for link type surveying chains of 20 m. and 30 m. lengths for land measurement.

2. *Definitions.*—(a) *Surveying chain.*—An instrument for measuring the surface distance between two points.

(b) *Length of chain.*—The distance between the outside surfaces of the handles when fully stretched.

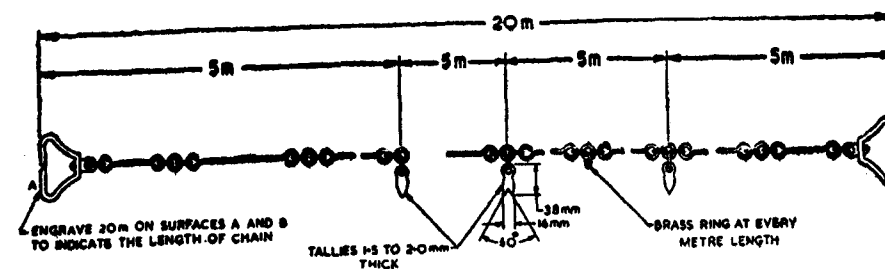
(c) *Tallies.*—Metallic tags or indicators of distinctive pattern fixed at various points of the chain, to facilitate quick reading of fractions of a chain.

3. *Material.*—The different components of the chains shall be made from the materials mentioned against each :—

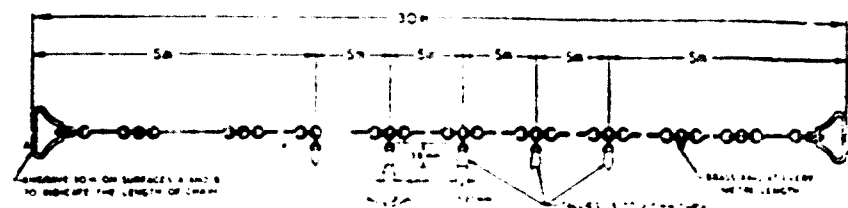
Component.	Material.
Handle	Brass castings.
Eye bolt Collar	Brass suitable for free cutting and high speed machine work.
Ring	Galvanized Mild Steel Wire 4.00 mm.
Link, small	
Link, Large	
Link, connecting	
Tally	Brass sheet or Galvanized sheet.
Indicating Ring	Brass wire.

4. *Constructional details.*—(a) The nomenclature of the different parts of the chain and the dimensions shall be as indicated in figures 1, 2 and 3.

(b) Tallies shall be fixed at every fifth metre along the chain. Small rings shall be fixed at every metre, except where tallies are attached. The tallies shall have distinctive shapes depending on their position in the chain as shown in figures 1 and 2.



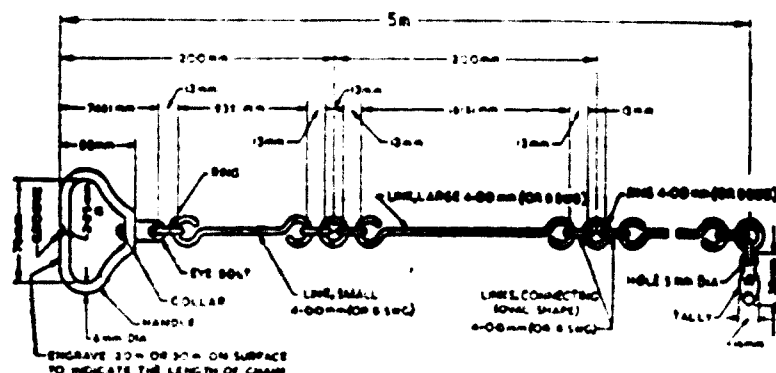
20-Metre chain.



30-Metre Chain.

(c) Connecting links between two large links shall be oval in shape, the central one being a circular ring.

(d) To facilitate holding the arrows (chain pins) in position with the handle of the chain, a groove shall be cut on the outside surface of the handle as shown in Figure 3. The radius of the groove shall correspond to the radius of the arrows.



Nomenclature and details of 5 m length at the Beginning and End of Surveying chain.

(e) The handle joint shall have flexibility in order that it may be possible to swivel the handle round the eye bolt. A swivel may also be provided at the middle of the chain.

5. *Permissible errors.*—*Survey chains.* When measured with a tension of 8 kg. every metre length shall be accurate with an error not exceeding + 2 to - 2 mm. The overall length shall be accurate within the limits shown below:—

30 m	+ 8 to - 8 mm
20 m	+ 5 to - 5 mm

6. *Marking.*—(a) The tallies used for marking the distances in a chain shall be marked with letters "ft" and "m" (See Figure 3).

(b) The length of the chain, 20 m or 30 m as the case may be, shall be indelibly marked over the handle (See Figure 3) to indicate the length.

(c) The chains shall be indelibly marked, on the reverse side of the surface of the handle having the denominations, with the manufacturer's name, or trade mark.

7. *Provision for stamping.*—A metal label or disc shall be permanently attached to the handle at the beginning of each chain for the Inspector's stamps.

PART XII.—Dry measures.

I. *General.*—This part deals with cylindrical measuring vessels for dry measures. These shall be used only for measuring out grains and grams like paddy, wheat, uncurled coffee, etc. and the capacity of the measure shall be the struck volume.

II. *Denominations.*—The following table gives the denominations of the cylindrical measures with details regarding the diameter and depth of vessels and thickness of material:

Denominations.	Depth in cm.	Internal diameter in cm.	Thickness of material (minimum).	
			For aluminium alloy.	For other materials.
(1)	(2)	(3)	(4a)	(4b).
			mm	mm
40 l	48.60	32.40	1.60	1.25
20 l	38.70	25.70	1.60	1.25
10 l	30.60	20.40	1.60	1.25
5 l	24.30	16.20	1.60	1.25
2 l	18.00	12.00	1.25	1.00
1 l	14.30	9.50	1.25	1.00
500 ml	11.40	7.50	1.00	0.80
200 ml	8.30	5.60	1.00	0.80
100 ml	6.60	4.40	1.00	0.80
50 ml	5.2	3.5	0.63	0.63
20 ml	3.8	2.6	0.63	0.63

NOTE: Tolerance on dimensions: 10 per cent provided the capacity of the measures is maintained within the limits of tolerance prescribed under paragraph IX of Part XII of Schedule IV.

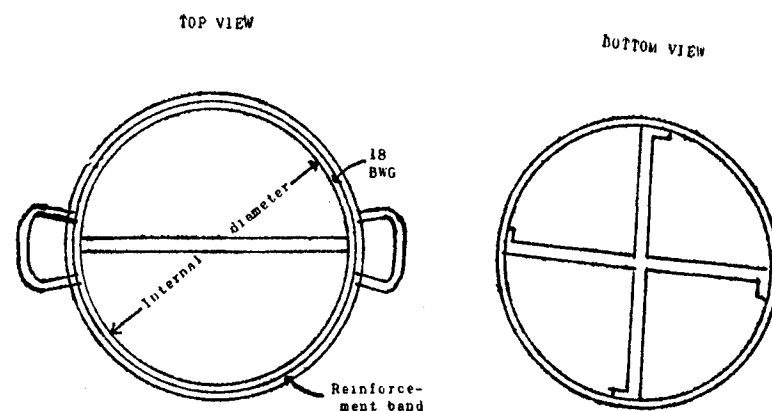
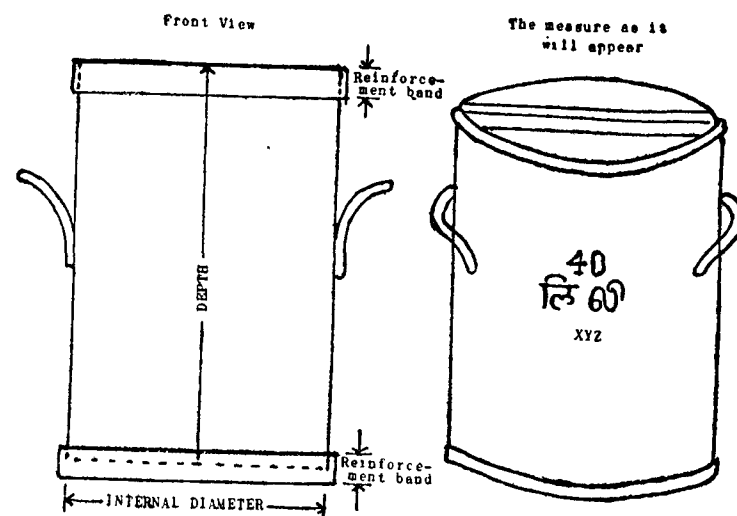
III. *Shapes and dimensions.*—Columns (3) and (4) of the above table give the internal depth and diameter of the cylindrical measures (to be used for dry measures) corresponding to the respective denominations. The measures shall be cylindrical in shape. The shape and dimensions shall be as in the figures given at the end.

IV. *Materials.*—The body of the cylindrical measures shall be made from aluminium alloy sheets, brass sheets or stainless steel sheets by the process of pressing, fabricating, spinning or stamping. Mild steel or galvanised sheets may also be used. For 40 and 20 litres, the body of the measure shall be made of mild steel. The minimum thickness of the sheets shall be as specified in column 4 (a) and 4 (b) of the Table under item II.

V. *Handles.*—Only the 40 litre, 20 litre, 10 litre and 5 litre sizes require handles, two numbers on diametrically opposite sides. These may be of 6.35 mm. size for both. The handles shall be strong and securely fixed to the body by rivetting, soldering, welding or brazing.

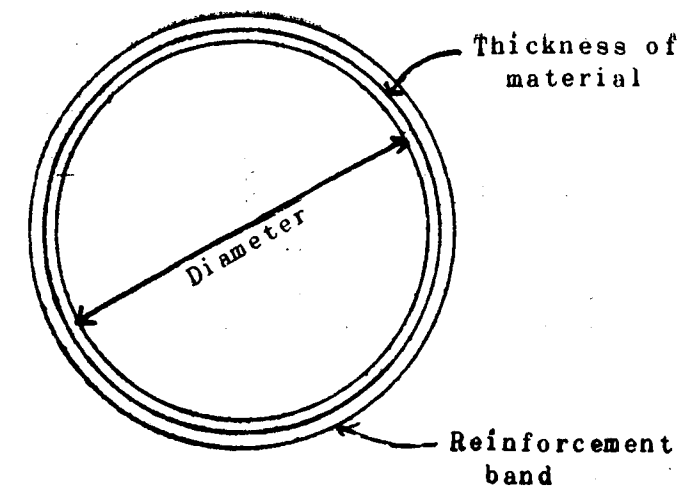
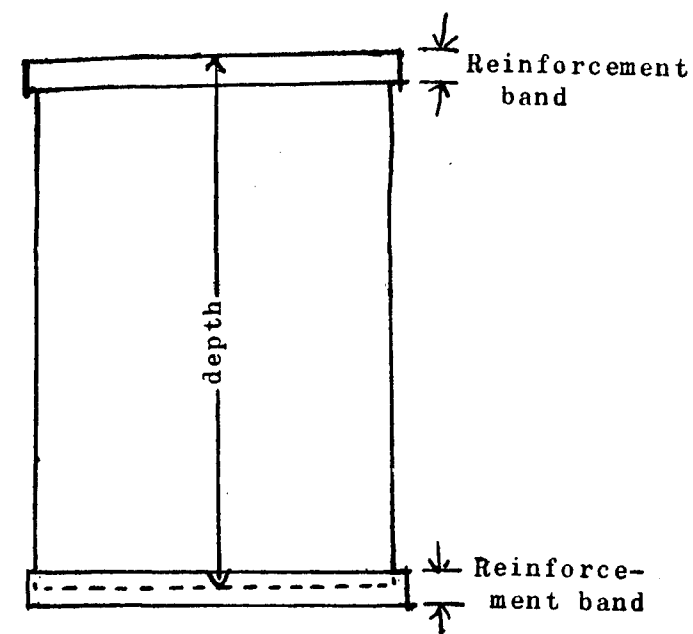
VI. *Stiffening.*—There shall be two reinforcement bands one at the top and one at the bottom. They shall be of the following dimensions namely:—

Denominations.	Dimensions (width).
(1)	(2)
40 l	4 cm
20 l	4 cm
10 l	4 cm
5 l	4 cm
2 l	2.5 cm
1 l	2.5 cm
500 ml	1.5 cm
200 ml	1.5 cm
100 ml	1.5 cm
50 ml	1.0 cm
20 ml	1.0 cm



DESIGN OF DRY MEASURES OF 40, 20, 10, 5 LITRE TO BE ADOPTED
IN MADRAS STATE

(5 litre will not have a stiffener in the top.)



Design of dry measures to be adopted in Madras State for 2 l., 1 l., 500 ml., 200 ml., 100 ml.

In the case of 40 litre, 20 litre, 10 litre and 5 litre sizes, the bottom also shall be suitably reinforced. The 40 litre, 20 litre and 10 litre sizes shall be provided with a stiffener across the upper rim of size 12.5 × 5 mm, the larger dimension being the vertical plane of a diameter.

VII. *Manufacture and finish.*—(a) The handles shall be of robust construction, and shall be securely fixed to the body by means of rivetting, soldering or brazing.

(b) The measures manufactured shall be free from any surface defects and indentation and shall be smoothly finished at the top. The measure shall be leak-proof.

(c) The dimensions of striking bar shall be as specified below :—

	Length of the striking bar.	Diameter of the striking bar.
	CM	M
(i) For the dry measure set consisting of 20 ml. to 5 l.	30	20
(ii) For dry measure of 10 l. capacity ..	40	20
(iii) For dry measure of 20 l. capacity ..	45	20
(iv) For dry measure of 40 l. capacity ..	50	20

The striking bar may be made of any of the metals referred to in item IV (Materials).

(d) The finished measures shall have adequate robustness for durability.

VIII. *Marking.*—(a) Each measure shall have the denominations and maker's name or trade mark indelibly embossed or stamped indicating denominations on the measures and shall be twice the size of the letters indicating manufacturer's name or trade mark.

(b) The denominations shall consist of international form of Indian Numerals and the abbreviation “ल” and “लि” to indicate litre and “एल” and “मिलि” to indicate millilitre.

IX. Permissible error.—

Type of measure.	Denomination of Commercial capacity measure.	Limits of error which may be tolerated at the time of verification and stamping.	Limits of error which may be tolerated at the time of inspection for other purpose.
(1)	(2)	(3)	(4)
		ML	ML
Dry measures ..	40l.	+400	-200 to +400
	20l.	+200	-100 to +200
	10l.	+100	-50 to +100
	5l.	+50	-25 to +50
	2l.	+30	-15 to +30
	1l.	+20	-10 to +20
	500 ml.	+15	-7.5 to +15
	200 ml.	+8	-4 to +8
	100 ml.	+5	-2.5 to +5
	50 ml.	+3	-1.5 to +3
	20 ml.	+2	-1 to +1

SCHEDULE V.

(See rule 9.)

Specification for commercial weighing instruments.

PART I.—General requirements.

1. Weighing instruments of the following categories are included in these specifications :—

- Beam scales.
- Counter machines.
- Steel-yards.
- Platform weighing machines.

- Weigh bridges.
- Spring balances.
- Crane weighing machines.
- Automatic weighing machines.
- Self-indicating and Semi-self-indicating counter type machines.
- Person weighing machines.

2. (a) Weighing instruments shall be of such materials, design and construction that, under normal conditions of service ;

- They maintain accuracy.
- They function satisfactorily without the need for frequent adjustments.
- Excessive stresses do not develop in the vital parts.

(b) All weighing instruments having steel-yards shall be of, what is commonly known as, the vibrating type.

(c) A vibrating type of instrument is an instrument which has its indicator oscillating on either side of the position of equilibrium.

(d) Weighing instruments shall be of good workmanship and finish.

(e) Weighing instruments having assembly parts, without which the accuracy of the instrument is affected, shall be so constructed that it is not possible to use the instrument without those parts. They shall be suitably identified with the weighing instrument of which they form essential components.

(f) Where an instrument has interchangeable or reversible parts, the interchange or reversal of such parts shall not affect the accuracy of the instrument.

(g) All graduations in weighing instruments shall consist of notches or uniform lines, sharply defined, which may be painted, printed, incised or embossed, so that the position of all pointers or sliding poises is clearly readable. All numbered graduations and their sub divisions shall be marked by lines longer than the minor graduations. The minimum width apart of graduations on steelyards shall be not less than 1.5 mm. of capacities below 3,000 kg. and 3 mm. for capacities of 3,000 kg. and above.

(h) *Knife-edges and Bearings.*—The knife-edges and bearings shall be of suitable hard material or of suitable quality steel. The steel knife-edges and bearings shall have the hardness specified below :—

(i) For beam scales of classes C and D and with capacities 10 kg. and below 54 Ro. minimum.

(ii) For other weighing instruments—60 to 66 Ro.

(i) The knife edges and bearings shall be replaceable wherever practicable.

(j) Knife-edges and bearings shall be accurately and firmly secured preferably by shanks and nuts or by bolts and nuts or by set-screws. The knife-edges and bearings shall be protected against corrosion and dirt.

(k) Racks and pinions shall be of suitable hard-wearing materials and shall be finished smooth.

(l) In the case of weighing instruments having steel-yards, the nib shall remain secure in the notch.

(m) The knife-edges shall bear upon practically the whole length of the bearings.

3. *Marking.*—(a) All weighing machines shall be prominently, legibly and indelibly marked with the maker's name or his registered trade mark, model, capacity and class (wherever applicable).

NOTE.—The manufacturer's name or the registered trade marks shall be such as will not be mistaken for the stamp or the seal of the verification authority.

(b) Weighing instruments shall have inscribed on them their maximum weighing capacity in the following manner :—

‘ To weigh.....t, kg. or g ’

‘ टन, किलो या ग्राम के लिये ’

as appropriate.

(c) All numerals appearing on weighing instruments, beams, steel yards, dials, etc., shall be in international form of Indian numerals.

4. *Sealing*.—All weighing instruments shall be provided by the manufacturer with a plug or stud of soft metal to receive the stamp or seal of the verification authority. Such plug or stud shall be provided in a conspicuous part of the instrument and shall be made in such a manner as to prevent its removal without obliterating the seal.

5. *Tests*.—(a) All weighing instruments shall be tested after they have been properly cleaned, and in the condition of their normal use, wherever practicable. Non-portable weighing instruments shall be tested *in situ* in addition to any other test that may be conducted at the premises of the manufacturer or dealer.

(b) *Sensitiveness*.—Is the least weight which when added to or removed from the loading platform or pan when the machine is in equilibrium, will cause an appreciable movement of the indicator from its position of equilibrium. *Error* is the least weight, which when added or removed will bring the indicator to the position of poise or equilibrium from its position of imbalance.

(c) Weighing instruments shall be tested for sensitiveness and maximum error—

(i) The greatest error in excess on verification for graduations on the steelyard in the range corresponding to the first half of the capacity shall be not more than half the error allowed at full load; for graduations on the remaining part of the steelyard, the error shall be not more than the error prescribed at full load.

(ii) The greatest error in excess, on verification in the case of machine fitted with dial shall be half the weight represented by the interval between the consecutive graduation marks.

(iii) The permissible error in respect of graduations on machines fitted both with steelyards and dial shall be as prescribed above in (i) and (ii).

PART II—BEAM SCALES.

1. *Definitions*.—(a) A beam scale may be defined as a weighing instrument with equal arms, having three knife-edges, three bearings, an indicator (pointer) in the centre, and pans suspended from the end knife-edges (See Figure 1).

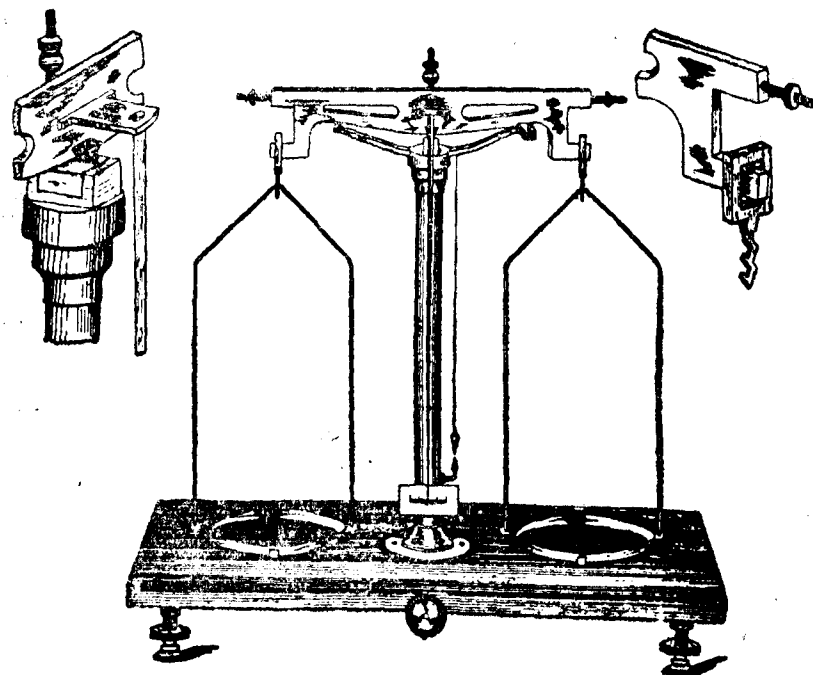


Fig. 1—Beam Scale.

(b) *Sensitivity*.—Is the ratio between "change in mass" in one pan of the balance and the corresponding deflection of the beam or of the attached pointer produced by this change. Sensitivity may, therefore, be expressed as mg per division.

(c) *Sensitiveness*.—Is the least weight which when added to or removed from the loading pan causes an appreciable movement of the indicator from its position of equilibrium.

(d) *Greatest error (due to inequality of arms)*.—The greatest error is the weight required to bring the scale to equipoise with weights of equal mass placed on the two pans.

2. *Classes*.—(a) Beam scales may be of four classes A, B, C and D depending on sensitivity or sensitiveness and greatest error specified in tables 1, 2, 3 and 4, respectively.

(b) The trades for which the different classes of scales may be used are:—

Class of scale.	Use.
A	Commercial assay and in dharam Kantas for verifying the weight of bullion and precious stones.
B	Precious stones, jewels, pearls, bullion, precious metals, saffron and similar expensive commodities, chemists and druggists' preparations, perfumery, etc.
C	Base metals and commodities such as cereals, tea, coffee, tobacco, jute, cotton, dry fruits, spices, oil-seeds, etc.
D	Weighment of cheaper commodities such as scrap iron, fuel, wood, charcoal, vegetables, etc.

3. *Capacities*.—Beam scales of the different classes may be of the capacities shown in tables 1, 2, 3 and 4.

4. *Materials*.—(a) *Materials for Class A beam scales*.—Class A beam scales shall be made of non-magnetic materials only.

(b) *Materials for other classes of beam scales*.—(i) Beams shall be made of stainless steel, mild steel, brass, bronze or aluminium alloy.

(ii) Pans shall be made of stainless steel, mild steel, brass or bronze. The pans of Class B beam scales may also be made of glass. In the case of beam scales of classes C and D pans of hardwood shall be permitted, for capacities 100 kg. and above. The pans of beam scales, when made of timber, shall be adequately reinforced with metallic plates and bands duly secured by bolts and nuts.

(iii) *Suspension*.—Pans shall be suspended from the beam by metal chains or metal stirrups; silk or nylon thread may also be used for Class A scales of capacity 100 g. and below.

(iv) All mild steel parts used in beam scales shall be suitably protected against rust.

5. *Beam fittings*.—(a) The knife-edges and bearings used in beam scales shall be of one of the following types:—

(i) "Agate-box"—Wherein agate bearings are fitted in a brass or iron box, with side holes which permit the projecting ends of the knife-edges to pass into the boxes and rest on or rise to their bearings (See Figure 2).

(ii) "Dutch-end"—Wherein the end bearings are fixed inside plates bolted together across the beam to form a shackle (See Figure 3).

(iii) "Swan-neck"—Wherein the ends are curved and slotted, the bottom of the slot forming a knife-edge the extremities of the beam being widened in a direction at right angles to its length so that the base of the slot is parallel to the central knife-edge (See Figure 4).

(iv) "Continuous knife-edge"—Wherein the knife-edges rest on the bearings along their whole length (See Figure 5).

6. *Construction*.—(a) Class A beam scales shall be provided with means for relieving the bearings and knife-edges.

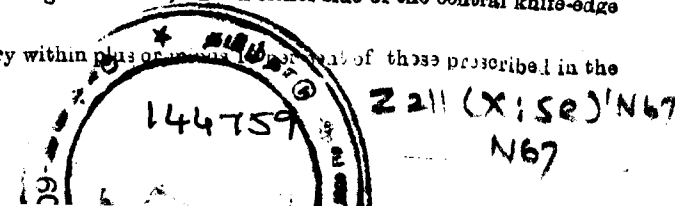
(b) Every beam scale of Class A shall be provided with a glass case. It shall also be provided with bubbles or a plumb line and levelling screws to facilitate levelling of the instrument.

(c) Beam scales of classes B, C and D shall have the loading dimensions specified in tables 5 to 9 and figures 6 to 10 as applicable.

(d) Class D beam scales shall be distinguished from Class C scales by two holes of the same size (5 to 10 mm. in diameter) through the beam, one on either side of the central knife-edge (See Figure 10).

(e) The dimensions may vary within plus or minus 10 per cent of those prescribed in the tables 5 to 9.

V-Ex.—44



(f) Beam scales of classes B, C and D and capacities 50 kg. and above shall be provided with balance balls or balance boxes. The balance ball or balance box shall be securely attached to one of the suspension chains or pans in such a manner that it is not possible to tamper with it easily. The balance ball or balance box shall not be so large as to contain loose material of weight exceeding one per cent of the scale of capacity 50 kg. or exceeding 1 kg. for scales of higher capacity.

(g) Beam scales other than of Class A shall not be provided with an attachment to adjust their sensitivity.

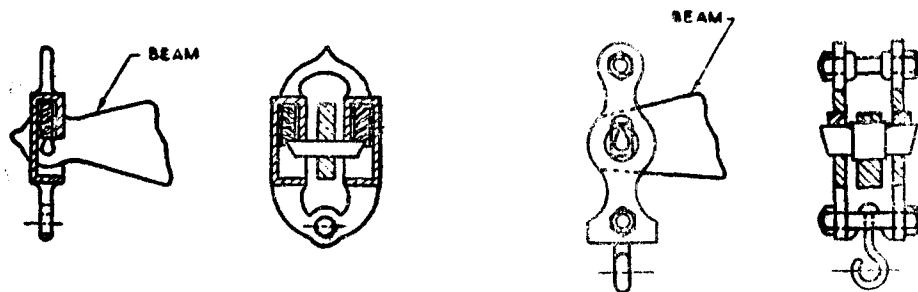


FIGURE 2—AGATE BOX.

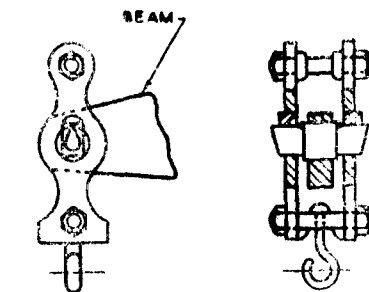


FIGURE 3—DUTCH END.

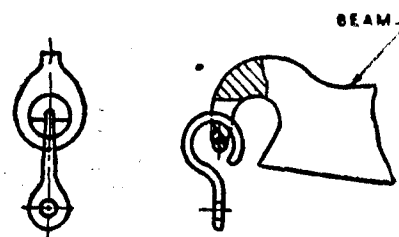


FIGURE 4—SWAN NECK.

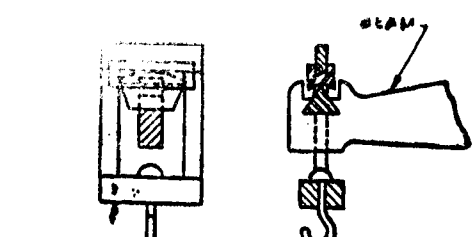


FIGURE 5—CONTINUOUS KNIFE EDGE.

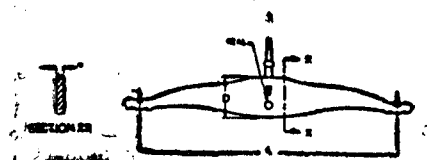


FIGURE 6—BEAM, CLASS B (FLAT TYPE).

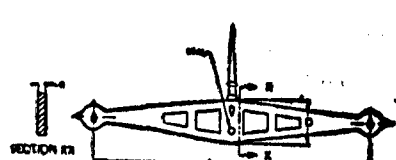


FIGURE 7—BEAM, CLASS B (OPEN PATTERN TYPE).

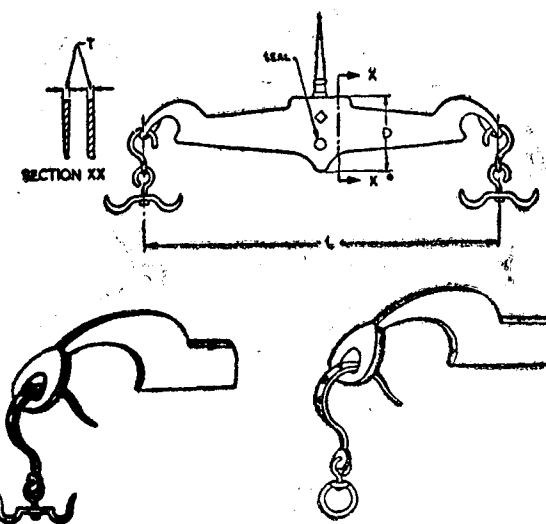


FIGURE 8—BEAM, CLASS C (SWAN NECK WITH SEPARABLE FLAT HOOKS).

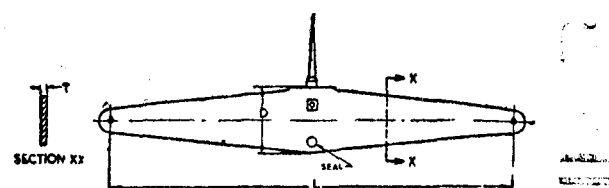


FIGURE 9—BEAM, CLASS C (DUTCH END TYPE).

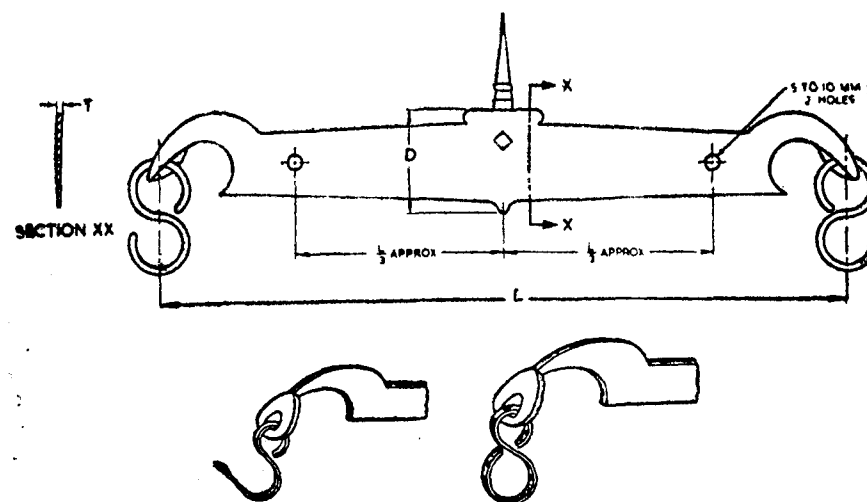


FIGURE 10—BEAM, CLASS D (SWAN NECK WITH FIXED FLAT HOOKS).

7. Tests.—(a) Sensitiveness.—The scales shall be tested for sensitiveness at full load and shall comply with the requirements specified in Tables 1 to 4.

(b) *Inequality of Arms test.*—(i) In the case of beam with fixed hooks, the beam with hooks but without chains and pans shall be brought to a position of equilibrium. If there are detachable hooks the beam without the hooks shall be brought to equilibrium. Later the hooks may be attached and the beam again brought to equilibrium. The beam with hooks, chains and pans is then brought to a position of equilibrium. It shall then be loaded with weights in both pans equal to the capacity of the scale and balanced. Where there is an attached hook, the chains and pans together with the loads in them shall be interchanged and extra weight added to one of the pans to balance the beam.

In the case of beams with detachable hooks, the hooks, chains and pans together with the load thereon shall be interchanged and the extra weight required to balance the beam noted. Half this extra weight shall not exceed the limits specified in Tables 1 to 4.

8. *Sealing.*—All beam scales shall be provided with a plug or plugs or stud or studs of soft metal to receive the stamp or seal of the verification authority. Such plug or plugs or stud or studs shall be provided in a conspicuous part of the scale and shall be made in such a manner as to prevent its removal without obliterating the seal or seals.

TABLE 1.—Limits for sensitivity and Greatest Errors for Beam Scales Class 'A'.

Capacity.	Verification.		Inspection.	
	Sensitivity per division of scale.	Greatest error allowed when fully loaded.	Sensitivity per division of scales.	Greatest error allowed when fully loaded.
(1)	(2)	(3)	(4)	(5)
2 g	0.02 mg	0.1 mg	0.06 mg	0.2 mg
10 g	0.05 mg	0.2 mg	0.15 mg	0.4 mg
20 g	0.10 mg	0.5 mg	0.30 mg	1.0 mg
50 g	0.20 mg	1.0 mg	0.60 mg	2.0 mg
200 g	0.50 mg	2.0 mg	1.50 mg	4.0 mg
1 kg	5.0 mg	20.0 mg	15.0 mg	40.0 mg
5 kg	10.0 mg	40.0 mg	30.0 mg	80.0 mg
20 kg	20.0 mg	80.0 mg	60.0 mg	160.0 mg
50 kg	20.0 mg	100.0 mg	150.0 mg	200.0 mg

TABLE 2.—Limits for sensitiveness and Greatest errors for Beam Scales Class 'B'.

Capacity.	Verification.		Inspection.	
	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.
(1)	(2)	(3)	(4)	(5)
2 g	0.2 mg	0.4 mg	0.60 mg	0.8 mg
5 g	0.5 mg	1.0 mg	1.5 mg	2.0 mg
10 g	1.0 mg	2.0 mg	3.0 mg	4.0 mg
20 g	2.0 mg	4.0 mg	6.0 mg	8.0 mg
50 g	5.0 mg	10.0 mg	15.0 mg	20.0 mg
100 g	10.0 mg	20.0 mg	30.0 mg	40.0 mg
200 g	20.0 mg	40.0 mg	60.0 mg	80.0 mg
500 g	50.0 mg	100.0 mg	150.0 mg	200.0 mg
1 kg	100.0 mg	200.0 mg	300.0 mg	400.0 mg
2 kg	100.0 mg	200.0 mg	300.0 mg	400.0 mg
5 kg	250.0 mg	500.0 mg	750.0 mg	1.0 g
10 kg	500.0 mg	1.0 g	1.5 g	2.0 g
20 kg	1.0 g	2.0 g	3.0 g	4.0 g
50 kg	2.5 g	5.0 g	7.5 g	10.0 g
100 kg	5.0 g	10.0 g	15.0 g	20.0 g
200 kg	10.0 g	20.0 g	30.0 g	40.0 g

TABLE 3.—Limits for sensitiveness and greatest errors for Beam Scales—Class 'C'.

Capacity.	Verification.		Inspection.	
	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.
(1)	(2)	(3)	(4)	(5)
100 g.	100 mg.	200 mg.	300 mg.	400 mg.
200 g.	200 mg.	400 mg.	600 mg.	800 mg.
500 g.	500 mg.	1.0 g.	1.0 g.	2.0 g.
1 kg.	1.0 g.	2.0 g.	3.0 g.	4.0 g.
2 kg.	1.0 g.	2.0 g.	3.0 g.	4.0 g.
5 kg.	2.5 g.	5.0 g.	7.5 g.	10.0 g.
10 kg.	5.0 g.	10.0 g.	15.0 g.	20.0 g.
20 kg.	10.0 g.	20.0 g.	30.0 g.	40.0 g.
50 kg.	25.0 g.	50.0 g.	75.0 g.	100.0 g.
100 kg.	25.0 g.	50.0 g.	75.0 g.	100.0 g.
200 kg.	37.5 g.	75.0 g.	112.5 g.	150.0 g.
500 kg.	62.5 g.	125.0 g.	187.5 g.	250.0 g.
1,000 kg.	125.0 g.	250.0 g.	375.0 g.	500.0 g.

TABLE 4.—Limits for sensitiveness and greatest errors for Beam Scales—Class 'D'.

Capacity.	Verification.		Inspection.	
	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.
(1)	(2)	(3)	(4)	(5)
1 kg.	2.0 g.	3.0 g.	6.0 g.	6.0 g.
2 kg.	2.0 g.	3.0 g.	6.0 g.	6.0 g.
5 kg.	5.0 g.	7.5 g.	15.0 g.	15.0 g.
10 kg.	10.0 g.	15.0 g.	30.0 g.	30.0 g.
20 kg.	20.0 g.	30.0 g.	60.0 g.	60.0 g.
50 kg.	25.0 g.	37.5 g.	75.0 g.	75.0 g.
100 kg.	50.0 g.	75.0 g.	150.0 g.	150.0 g.
200 kg.	50.0 g.	75.0 g.	150.0 g.	150.0 g.
300 kg.	75.0 g.	150.0 g.	225.0 g.	300.0 g.
500 kg.	125.0 g.	250.0 g.	375.0 g.	500.0 g.
1,000 kg.	250.0 g.	500.0 g.	750.0 g.	1,000.0 g.

TABLE 5.—Leading dimensions of Beam for Beam Scales—Class 'B' (with Pointer above the beam).

Capacity.	Length between the ends. (nominal).	Depth at the centre. (nominal).	Thickness of plate at the centre (nominal).
(1)	(2)	(3)	(4)
	L mm	D mm	T mm
(a) Flat type with pointer above beam.			
2 g.	70	3	2
5 g.	95	3	2
10 g.	110	4	2
20 g.	120	20	3.15
50 g.	135	22	3.15
100 g.	150	25	4
200 g.	170	25	5
500 g.	200	30	5
1 kg.	250	40	6
2 kg.	300	45	6
5 kg.	450	50	6
10 kg.	500	58	8
20 kg.	600	58	10
50 kg.	750	100	15
100 kg.	1,000	110	18
200 kg.	1,250	125	25

(b) Open pattern (Bridge) type with pointer above beam.

200 g.	170	25	5
500 g.	260	37	5
1 kg.	310	44	5
2 kg.	350	48	5
5 kg.	450	60	6
10 kg.	500	70	8
20 kg.	600	80	10
50 kg.	750	120	15
100 kg.	1,000	150	20

TABLE 6.—Leading dimensions of beam for Beam Scales—Class 'B' flat and open pattern type with pointer below the beam.

Capacity.	Length between the ends. (Nominal).	Depth at the centre (Nominal).	Thickness of plate at the centre knife edge (Nominal).
(1)	(2)	(3)	(4)
	L mm.	D mm.	T mm.
2 g.	70	3	2
5 g.	95	3	2
10 g.	110	4	2
20 g.	120	20	3.15
50 g.	135	20	3.15
100 g.	150	20	4
200 g.	200	20	6
500 g.	235	25	8
1 kg.	300	30	8
2 kg.	320	30	9
5 kg.	350	32	10
10 kg.	400	40	12
20 kg.	500	50	14
50 kg.	700	70	18
100 kg.	800	80	20
200 kg.	1250	125	25

TABLE 7.—Leading dimensions of beam for beam scales—Class 'C' (Swan neck type)

Capacity.	Length between the ends (nominal).	Depth at the centre (nominal).	Thickness of plate at the centre knife edge (nominal).
(1)	(2)	(3)	(4)
	L mm	D mm	T mm
100 g	150	30	4
200 g	200	40	5
500 g	300	40	6
1 kg	350	45	6
2 kg	400	45	6
5 kg	500	70	6
10 kg	600	80	6
20 kg	750	108	8
50 kg	900	116	8
100 kg	1,200	138	14
200 kg	1,350	148	16
300 kg	1,650	154	18
500 kg	1,800	178	25
1,000 kg	2,000	200	32

TABLE 8.—Leading dimensions of beam for beam scales—Class 'C' (Dutch end type).

Capacity.	Length between the end knife edge. (Nominal).	Depth at the centre. (Nominal).	Thickness of plate at the centre knife edge (Nominal).
(1)	(2)	(3)	(4)
	L mm	D mm	T mm
100 g	150	35	4
200 g	200	40	5
500 g	300	40	6
1 kg	350	45	6
2 kg	400	45	6
5 kg	450	70	6
10 kg	450	75	8
20 kg	600	75	8
50 kg	750	80	8
100 kg	900	120	14
200 kg	900	133	16
300 kg	1,050	142	16
500 kg	1,350	192	20
1,000 kg	1,650	203	25

TABLE 9.—Leading dimensions of beam for beam scales Class—'D'.

Capacity.	Length between the end knife edge. (nominal).	Depth at the centre. (nominal).	Thickness of plate at the centre. (nominal).
	L	D	T
	mm	mm	mm
(1)	(2)	(3)	(4)
(a) Swan hook with fixed flat hooks.—			
1 kg	250	45	6
2 kg	400	45	6
5 kg	550	70	6
10 kg	600	80	6
20 kg	750	108	6
50 kg	900	116	8
100 kg	1200	138	14
200 kg	1350	148	16
300 kg	1650	154	18
(b) With detachable flat hooks.—			
500 kg	1800	178	25
1,000 kg	2,000	200	32

PART III—Counter machines.

1. *Definition.*—A counter machine is an equal armed weighing instrument of capacity not exceeding 50 kg. the pans of which are above the beam. Figure 1 illustrates a typical counter machine.

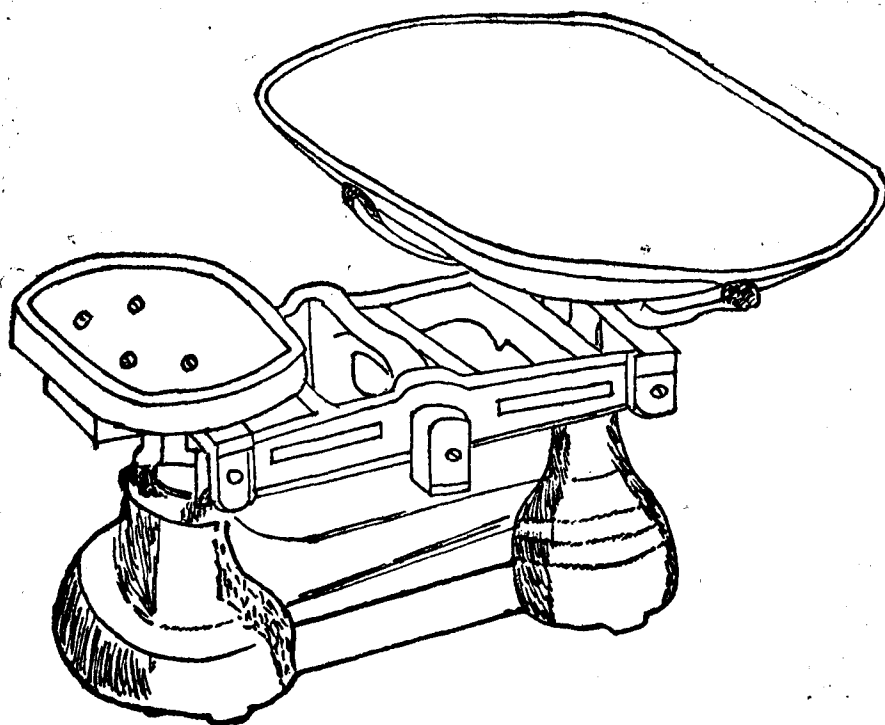


Fig. 1.—Counter Machine.

2. *Capacities.*—The machines may be of the following maximum capacities,—500 g., 1 kg., 2 kg., 3 kg., 5 kg., 10 kg., 15 kg., 20 kg., 25 kg., and 50 kg.

3. *General requirements.*—(a) When the beam or body has two sides, they shall be connected together by not less than two cross-bars. The supports for the pans shall be of a suitable rigid structure such as cross members strengthened by straps. Central pieces of forks shall be fixed so that they are not twisted or dislocated.

(b) Bearing surfaces, knife-edges and points of contact of all stays, hooks and loops shall be of hard steel or agate. The knife-edges and bearings shall be so fitted as to allow the beam to move freely. The knife-edges shall rest upon the bearings along the whole length of their working part.

(c) A counter-machine may have a balance box for minor adjustments. In such a case, the balance box shall be permanently fixed beneath the weight pan and shall be large enough to contain loose material to an amount up to one per cent of the capacity of the machine.

No other adjusting contrivances shall be used.

(d) The pans may be of any suitable material such as mild steel, stainless steel, brass or bronze. They may be of any convenient shape.

(e) The minimum fall either way, on counter-machines shall be as follows:—

Capacity.	Fall.
500 g., 1 kg. and 2 kg.	6 mm.
3 kg., 5 kg., 10 kg and 15 kg	10 mm.
20 kg. and 25 kg	12 mm.
50 kg.	13 mm.

4. *Tests.*—(a) The machines shall be tested on a horizontal level plane.

(b) *Sensitiveness and error.*—(i) The machine shall be tested for sensitiveness at full load with the beam in horizontal position. The addition of the weight specified in column (2) or (4), as the case may be in Table 1 shall cause the pointer to rise or fall to the limit of its range of movement.

(ii) The error is the weight, if any, required to bring the beam of the instrument to a horizontal position when fully loaded with the weights equal to its capacity on both pans. It shall not exceed the limits specified in columns (3) and (5) as the case may be of Table 1.

(c) The test for sensitiveness shall be carried out only with the pans loaded to the full capacity of the machine.

(d) When the goods pan is in the form of a scoop, the machine shall be correct to the prescribed limits of error if half the full load is placed against the middle of the back of the scoop and the other half at any position on the scoop.

(e) When the goods pan is not in the form of a scoop, the counter machines shall indicate the same weight within half the prescribed limits of error, if the centre of a load equal to half the capacity is placed on the goods pan anywhere within a distance from the centre equal to one third of the greatest length of the pan, or if the pan has a vertical side against the middle of that side, the weight being entirely on the weight pan, but in any position on it.

TABLE 1.—Sensitiveness and errors for counter machine.

Capacity.	Verification.		Inspection.	
	Sensitiveness When fully loaded.	Greatest error allowed in excess or deficiency when fully loaded.	Sensitiveness when fully loaded.	Greatest error allowed when fully loaded.
(1)	(2)	(3)	(4)	(5)
500 g	1.5 g	2.2 g	4.5 g	4.5 g
1 kg	2.0 g	3.0 g	6.0 g	6.0 g
2 kg	3.0 g	4.5 g	9.0 g	9.0 g
3 kg	4.0 g	6.0 g	12.0 g	12.0 g
5 kg	6.0 g	9.0 g	18.0 g	18.0 g
10 kg	7.0 g	10.5 g	21.0 g	21.0 g
15 kg	8.0 g	12.0 g	24.0 g	24.0 g
20 kg	9.0 g	13.5 g	27.0 g	27.0 g
25 kg	10.0 g	15.0 g	30.0 g	30.0 g
50 kg	15.0 g	30.0 g	45.0 g	60.0 g

5. *Sealing.*—Each machine shall be provided with a plug or stud of soft metal on a conspicuous part of the beam or body for receiving a seal. Such a plug or stud shall be made irremovable by undercutting it or by some suitable method.

PART IV.—Steelyards.

1. *Definition.*—A steel yard means an unequal armed balance.
2. *Capacities.*—Steelyards may be of the following capacities.
5 kg, 10 kg., 20 kg., 50 kg., 100 kg., 150 kg., 200 kg., 250 kg., 300 kg., 500 kg., and 1,000 kg.
3. *Design and construction.*—(a) The general design of steelyard shall be as given in Figure 1.

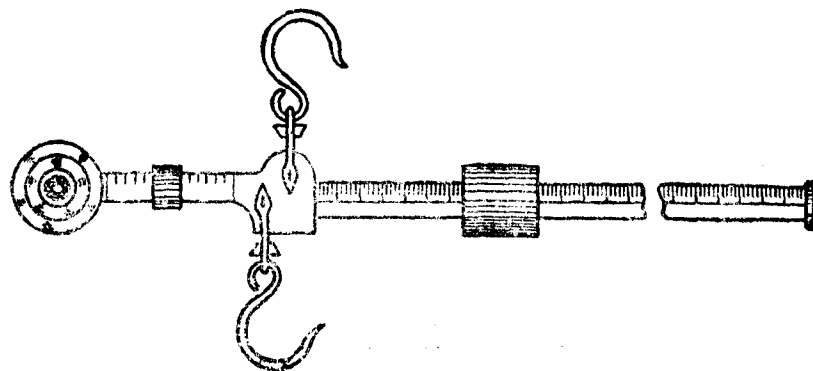


Fig. 1.—Steel Yard.

- (b) Steelyards shall be made of either mild steel or stainless steel.
 - (c) The shank shall be perfectly straight but its cross-section need not necessarily be uniform throughout. Notches or graduations on the shank shall be cut in one plane and at right angles to the shank.
 - (d) The design of the sliding poise shall be such that the nib remains secure in the notch.
 - (e) Steelyards shall be provided with a stop or other suitable arrangement to prevent excessive oscillation of the shank.
 - (f) The sliding poise and suspending hooks shall be securely attached to the instrument. All end fittings such as the nut attached to prevent the poise carrier riding off the steelyard, shall be securely fixed to the shank. The sliding poise shall be freely movable and there shall be a stop to prevent it from travelling behind the zero mark. Steelyards having counter-poise or travelling poise shall be provided with a hole or other suitable means for the future adjustment of the counter-poise or travelling poise, such hole being undercut. Wherever loose material is used in the travelling poise, it shall be securely enclosed.
 - (g) Steel yards shall be neither reversible nor have three hooks and shall not be of counter type.
 - (h) Steelyards shall be provided with a vertical pointer directly above the fulcrum to indicate the true equilibrium.
 - (i) If a movable hook, tray or bucket, is used, it shall form an essential part of the steel yard without which it is not possible to balance the steelyard.
4. *Tests.*—(a) Steelyards shall be tested at full load for sensitiveness and error, and shall comply with the requirements of Table I.
- (i) The test for sensitiveness shall be carried out at full load with the steelyard in horizontal position. The addition of the weights specified in column (2) or (4) of Table I shall make the steelyard turn.
 - (ii) The error or the weight, if any, required to bring the steelyard to a horizontal position when fully loaded shall not exceed the limits specified.
- (b) Each numbered graduation shall be tested and the instrument shall be correct whether the test is carried out with increasing or decreasing loads.
 - (c) The intermediate graduations shall also be tested to see that they are correct and are at proper distance apart.
 - (d) No test for sensitiveness at a lower load shall be made.

TABLE I.—Sensitiveness and errors for steelyards.

Capacity.	Verification.		Inspection.	
	Sensitiveness when fully loaded.	Greatest error allowed in excess or deficiency when fully loaded.	Sensitiveness when fully loaded.	Greatest error allowed in excess or deficiency when fully loaded.
(1)	(2)	(3)	(4)	(5)
5 kg	2.5 g	3.8 g	7.5 g	7.5 g
10 kg	5 g	7.5 g	15 g	15 g
20 kg	10 g	15 g	30 g	30 g
50 kg	25 g	50 g	75 g	100 g
100 kg	40 g	80 g	120 g	160 g
150 kg	60 g	120 g	180 g	240 g
200 kg	80 g	160 g	240 g	320 g
250 kg	100 g	200 g	300 g	400 g
300 kg	120 g	240 g	360 g	480 g
500 kg	200 g	400 g	600 g	800 g
1,000 kg	400 g	800 g	1,200 g	1,600 g

5. *Sealing.*—Each instrument shall be provided with a plug or stud of soft metal on the front face of the shoulder of the steelyard for receiving the seal of the verification authority. Such a plug or stud shall be made irremovable by undercutting or by some other suitable method.

Part V.—Platform weighing machines.

1. *Definition.*—(a) A platform weighing machine means a weighing instrument with compound levers and with the goods receptacle generally in the form of a platform. The capacity of these machines shall not exceed 3 tonnes and the weight of the load is indicated with steelyard or other form of indicator.

(b) The nomenclature of a platform weighing machine is given in Figure 1 which shows a "loose-weight" type machine. In the case of "No-loose-weight" type machine, there are two sliding poises, one for the major bar and the other for the minor bar of the steelyard.

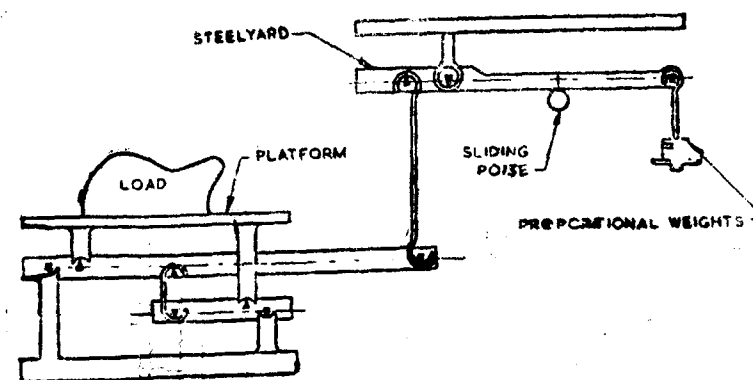


Fig. 1.—Platform Weighing Machine.

2. *Capacities.*—Platform weighing machines may be of the following capacities: 50 kg., 100 kg., 150 kg., 200 kg., 250 kg., 300 kg., 500 kg., 1,000 kg., 1,500 kg., 2,000 kg. and 3,000 kg.

3. *General requirements.*—(a) *Steelyard.*—(i) The steelyard in the platform weighing machine shall not have any readily removable part except the support for proportional weights. There shall be one or more stops to prevent the sliding poise or poises from travelling behind the zero mark. The minimum travel of a steelyard in platform machines shall be 10 mm. either way.

(ii) The top and bottom of the guide and/or steelyard shall be fitted with non-magnetic material.

(iii) When the steelyard is provided with notches these shall be suitably protected.

(iv) The value of the smallest division on the minor bar shall not exceed the greatest error allowed for that capacity except machines of capacities 200 kg., and below in which case the value of the smallest division may exceed the error prescribed for that capacity but shall not exceed 100 g.

(v) The value of the smallest graduation on dials or minor steelyards, and wherever possible major steelyards shall be 1 g., 2 g., 5 g., or any multiple by 10 or any power of 10 (for instance 100, 1,000, etc.) of any of these weights.

(b) *Platform.*—(i) The permissible extension of the platform on either side of the box in the case of extended platform shall be not more than 25 per cent of the length of the box.

(ii) If a movable hutch, barrow, frame or bucket is used with the ordinary platform it shall form an essential part of the machine without which it is not possible to balance the machine. The movable hutch, barrow, frame or bucket shall be identified with the machine and when in position on the platform, it shall be as central as possible.

(c) *Balancing arrangement.*—(i) Where a balance box is provided on the steelyard, the balancing ball shall not be easily accessible.

(ii) The balancing arrangement for daily wear and tear shall have a range not exceeding 0.5 per cent of the capacity of the machine and not less than 0.125 per cent of the capacity each way (see Table 1). The balance box containing the balancing ball shall be securely attached to the steelyard, preferably by passing a bolt through the casing to the steelyard. The balancing ball shall be actuated by a detachable key.

(d) In the case of platform machines provided with dials—

(i) The racks and pinions shall be of suitable hard-wearing material and shall be finished smooth;

(ii) The extremity of the pointer shall, in no position be at a greater distance than 5 mm. from the graduated surface of the dial. Further, the extremity of the pointer shall be on the graduated portion of the dial and it shall be so made as not to obscure the graduations or make them difficult to read; and

(iii) The dial shall be graduated into equal parts and the minimum width between the graduations shall not be less than 2 mm.

(e) The machine may, if required, have arrangement for marking up the tare.

(f) For machines without proportional weights, the total capacity shall be that indicated on the major steelyard.

4. *Proportional weights.*—(a) All loose proportional weights in a platform machine shall be identified with the machine by a number or any other suitable mark of identification, which shall be indelible. The counterpoise weights shall be marked with their equivalent weights as indicated in Fig. 2.

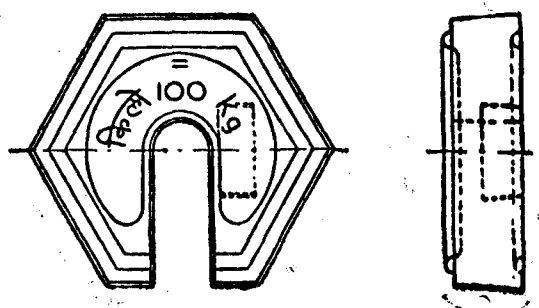


Fig. 2.—Proportional Weight.

(b) The proportional weights shall be hexagonal in shape with a slot of suitable size to allow them being placed on the counter balance (see Fig. 2).

(c) The proportional weights shall be made of cast iron or brass.

(d) The proportional weights shall have one rectangular loading hole which shall be undercut or tapering outwards so as to hold lead securely for adjustments. The undercut hole shall be reasonably large to accommodate the lead required for adjustments. The surface of the lead in the loading hole of a new proportional weights shall be at least 3 mm. inside from the bottom surface of the weight.

(e) In the case of platform machines provided with proportional weights, the smallest denomination of the proportional weights shall be equivalent to the weights represented by the maximum graduation on the steelyard.

(f) The denomination of the proportional weights shall be 1 kg., 2 kg., 5 kg., or a multiple or sub-multiple by 10 or a power of 10 (100, 1,000 etc.) of any of these weights. Any number of proportional weights in any one of the aforesaid denominations may be included provided the total of all the proportional weights does not exceed the capacity of the weighing instrument.

Note.—While arriving at the capacity of the platform machines, the maximum graduation shown on the steelyard in the case of Loose-weight "Platform machines" and on the minor bar in the case of "no-loose-weight" type machines shall not be taken into account.

(g) The total capacity of the machine shall include the capacity of graduated tare bar or bars wherever provided.

Note.—When tare bars are used and are not graduated except with a zero mark only, they shall not be taken into account when calculating the capacity of the machines. Ungraduated tare bars shall be marked with zero.

5. *Tests and test requirements.*—(a) The steelyard of a platform weighing machine shall remain horizontal at no-load.

(b) Platform weighing machines shall be tested to verify the accuracy of graduations or notches up to the total capacity.

(c) All loose proportional weights, where these are provided shall be tested and then suitably sealed to prevent tampering.

(d) With one quarter of the maximum load (or as near thereto as practicable) placed in the middle or at any one of the corners of the platform, the platform weighing machine shall show the correct weight within half the limits of error prescribed in Table 2 in column (3) for non-dial type machines and in column (4) for dial type machine.

(e) Platform weighing machines with steelyard arrangement shall be tested for sensitiveness and error at full load or as near to it as practicable. The sensitiveness and permissible error shall not exceed the limits prescribed in columns (2) and (3) respectively of Table 2.

(f) The machines shall be tested at loads corresponding to the major divisions or notches.

(g) With the exception of sensitiveness test (see 'e' above) the other tests mentioned above shall be carried out in a similar manner on dial type machines also.

These machines shall comply with the requirements prescribed in column (4) of Table 2.

6. *Sealing.*—(a) Platform machines of the dial type shall be fitted with a soft-metal plug for receiving the seal of the verification authority and wherever practicable, this plug shall be passed through the dial and frame. The plug or stud fitted on the dial shall be so supported as to prevent the risk of any damage to the instrument.

(b) On platform machine other than those of the dial type, a plug or stud shall be provided in a conspicuous position on the indicating lever or steelyard.

TABLE 1.—Range of balancing arrangement.

Capacity.	Range of balancing arrangement.	
	Max 0.5 per cent of capacity.	Min 0.125 per cent of capacity each way.
(1)	(2)	(3)
kg		
50	250 g	60 g
100	500 g	125 g
150	750 g	185 g
200	1.0 kg	250 g
250	1.3 kg	310 g
300	1.5 kg	350 g
500	2.5 kg	625 g
1,000	5.0 kg	1.25 kg
1,500	7.5 kg	1.88 kg
2,000	10.0 kg	2.50 kg
3,000	15.0 kg	3.75 kg

TABLE 2.—Sensitiveness and errors for platform machine.

Capacity.	Verification.			Inspection.		
	Sensitiveness when fully loaded.	Greatest error allowed in excess or in deficiency when fully loaded for		Sensitiveness When fully loaded.	Greatest error allowed in excess or in deficiency when fully loaded for	
		Non-dial type machines.	Platform machines fitted with dials.		Non-dial type machines.	Platform machines fitted with dials.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
kg	g	g		g	g	
50	10	20	A weight cor-	30	40	A weight cor-
100	20	40	responding	60	80	responding
150	30	60	to one-half	90	120	to the inter-
200	40	80	the interval	120	160	val between
250	50	100	between	150	200	consecutive
300	60	120	consecutive	180	240	gradua-
500	100	200	tions.	300	400	tions.
1,000	125	250		375	500	
1,500	200	400		600	800	
2,000	250	500		750	1,000	
3,000	300	1,000		900	2,000	

PART VI.—Spring balances.

1. *Definition.*—(a) A spring balance is an instrument which on the application of the load to be weighed, indicates the whole weight by the extension or compression of a spring, such extension or compression being registered by means of a pointer on a dial.

(b) The general arrangement of a spring balance without scoop and support is illustrated in Figure 1.

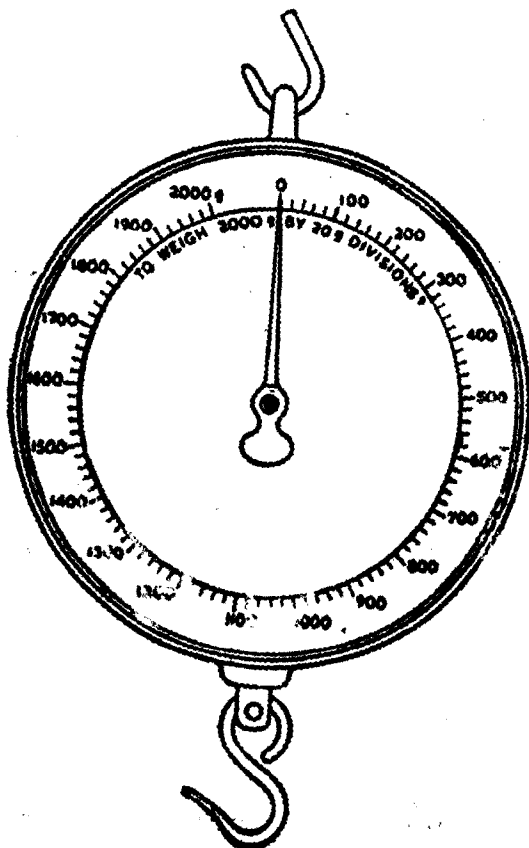


Fig. 1.—Spring Balance.

2. *Capacities.*—The spring balance shall be of one of the capacities shown in Table 1.

3. *General requirements.*—(a) In addition to the general requirements specified in Part I of this schedule, spring balance shall comply with the requirements given below:—

(b) The spring balance with the goods pan below the spring shall be suspended permanently from a stand, support or bracket.

(c) If pans are provided for the balance, they shall be made of brass, bronze, cast iron, mild steel or stainless steel. Metal chains or metal supports shall be provided if pans are suspended. When mild steel is used, it shall be suitably protected against corrosion.

(d) The extremity of the pointer shall not exceed 1.0 mm. in width and shall not be more than 3.0 mm. away from the graduation on the dial.

(e) The dial shall be graduated into equal parts, and the width apart of the graduations shall be not less than 2 mm.

(i) The weight corresponding to the interval between consecutive graduation marks shall not exceed the values given in Table I.

(ii) When the graduation commences at a fixed load, the position of the index, when there is no load shall be clearly indicated by a zero mark.

(f) When a spring balance is provided with an adjustable indicator, the range of adjustment shall not exceed one per cent of the capacity of the instrument, except in the case of instruments used for mixing purposes where it shall not exceed two per cent.

(g) Spring balances shall have a device incorporated in the design to prevent overloading.

(h) The body of the spring balances shall be constructed of brass, cast iron, mild steel or any other suitable material, and shall be sufficiently robust in construction.

4. *Tests.*—(a) When the pan is below the spring, the prescribed limits of error shall not be exceeded, wherever the load is placed on it.

(b) If the pan is in the form of a scoop and half the full load is placed at the farthest point from the centre of the scoop and the other half at any position, the spring balance shall be correct to the prescribed limits of error.

(c) When the pan is not in the form of a scoop, the spring balance shall indicate the correct weight within half the prescribed limits of error, if the centre of a load equal to half the capacity is placed on the pan anywhere within a distance from the centre equal to one-third of the greatest length of the pan, or if that pan has a vertical side against the middle of that side, the weight being entirely on the weight pan.

(d) Each graduation shall be tested.

(e) The instrument shall be correct whether the test is made by progressively increasing or decreasing the loads, provided that in either case the spring shall be allowed to vibrate before the reading is taken.

(f) The balance shall be loaded to its capacity, and the load maintained for a period of 24 hours after which it shall be removed. Four hours after removal of the load, the balance shall not show any permanent set. Further, when tested as stated in (e) above, it shall record correct readings.

(g) Spring balances shall not be tested for sensitiveness.

5. *Sealing.*—Spring balances shall be fitted with a soft plug to receive a seal and wherever practicable this plug shall pass through the dial or frame. The plug or stud shall be so supported as to allow no risk or injury to the instrument.

TABLE 1.—Maximum errors for spring balances.

Capacity.	Weight corresponding to interval between consecutive graduations.	Maximum error.	Remarks.
(1)	(2)	(3)	(4)
1 kg	5 g	A weight corresponding to 25 per cent of the interval between successive graduations.	While fixing the diameter of effective circle on dial of one revolution, a blank space of 15 mm. at the end of graduations has to be provided. In the case of multi-revolution spring balances, the minimum blank space requirement shall not apply.
2 kg	20 g		
5 kg	20 g		
10 kg	50 g		
15 kg	50 g		
20 kg	100 g		
30 kg	100 g	A weight corresponding to 50 per cent interval between successive graduations.	
50 kg	200 g		
100 kg	500 g		
150 kg	1.0 kg		
200 kg	1.0 kg		
300 kg	1.0 kg		
500 kg	2.0 kg		

NOTE.—Inspection tolerances shall be double the values shown in column 3.

Part VII—Weighbridges.

1. *Definition.*—A weighbridge shall mean a weighing instrument constructed with compound levers with the indicator system carried on foundations separate from the lever system to weigh loads of capacities 1,000 kg. (one tonne) and over, through the medium of proportional weights or indicating mechanism. A typical weigh bridge is illustrated in Fig. 1.

SCHEDULE VI, PART VII—Weighbridge.

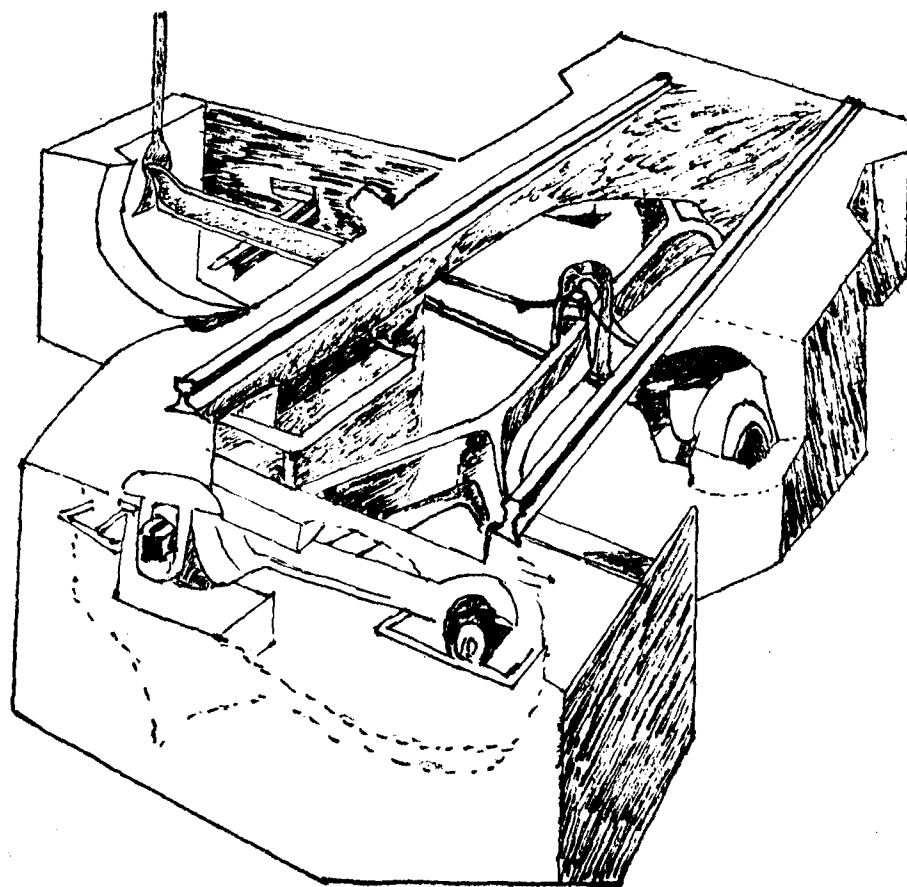


FIG. 1—Weighbridge.

2. *Capacities.*—Weighbridges may be of the following capacities :—

1 t, 2 t, 3 t, 5 t, 10 t, 15 t, 20 t, 25 t, 30 t, 40 t, 50 t, 60 t, 80 t, 100 t, 150 t, 200 t, 300 t, 400 t.

3. *General requirements.*—(a) In addition to the general requirements specified in Part I of this schedule, weighbridges shall comply with the requirements given below.

(b) *Frame work.*—Where the weighbridge is fitted with a framework, it shall be built up of mild steel sections or cast iron or cast steel. It shall be of rigid structure suitably strengthened so that it is capable of resisting excessive vibrations and shall not throw the lever system out of alignment. Brackets shall be provided on the side and end frames to secure the frame work.

(c) *Steelyard.*—(i) The steelyard of a weighbridge shall not have any readily removable parts except the support for the proportional weights. There shall be one or more stops to prevent the sliding poise or poises from travelling behind the zero mark.

(ii) The minimum travel of the steelyard in weighbridges shall be 13 mm. each way.

(iii) The top and bottom of the guide and/or steelyard shall be fitted with non-magnetic material.

(iv) When the steelyard is provided with notches, the latter shall be suitably protected.

(v) The value of the smallest division on the minor bar shall not exceed the greatest error allowed for that capacity (See Table 2).

(d) *Graduations.*—The value of the smallest graduation on dials or minor steelyards and wherever possible major steelyard of weighing instruments shall be 1g, 2 g, 5 g, or any multiple by 10 or a power of 10 (for instance, 100, 1,000, etc.) of any of these weights.

(e) *Platform.*—(i) The platform shall be either chequered or plain and shall be made of cast iron or steel plates. It shall be rigid and sufficiently strong to carry the maximum load. The foundation shall provide for a manhole to facilitate easy access to the pit.

(ii) If a movable hutch, barrow, frame or bucket is used with the ordinary platform, it shall form an essential part of machine without which it is not possible to balance the machine. The movable hutch, barrow, frame or buckets shall be identified with the machine and when in position on the platform it shall be as central as possible.

(f) *Balancing arrangement.*—The balancing arrangement for daily wear and tear shall have a range not exceeding 0.5 per cent of the capacity of the machine and not less than 0.125 per cent of the capacity each way. The balance box containing the balancing ball shall be securely attached to the steelyard, preferably by passing a bolt through the casting to the steelyard. The balancing ball shall be actuated by a detachable key.

(g) In the case of weighbridges provided with dials :—

(i) Racks and pinions shall be of suitable hardwearing material finished smooth.

(ii) The extremity of the pointer shall, in the position be at a greater distance than 5mm. from the graduated surface of the dial. Further, the extremity of the pointer shall be on the graduated portion of the dial, and it shall be so made as not to obscure the graduations or make them difficult to read ;

(iii) The dial shall be graduated into equal parts and the minimum width between graduations shall be not less than 2 mm.

(h) For no loose weight steelyard machines, the total capacity shall be that which is indicated on the steelyard.

4. *Proportional weights.*—(a) All loose proportional weights shall be identified with the machine by a number or any other suitable mark of identification which shall be indelible. They shall be marked with their equivalent weights as shown in Fig. 2.

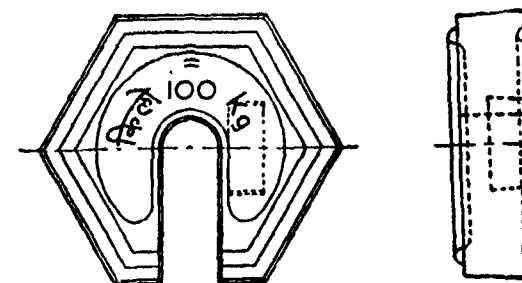


FIG. 2—Proportional weight.

(b) Proportional weights shall be hexagonal in shape with a slot of suitable size to allow their being placed on the counter balance (See Fig. 2).

(c) The proportional weights shall be made of cast iron or brass.

(d) The proportional weights shall have one rectangular loading hole, which shall be undercut or tapering outwards so as to hold load securely for adjustment. The surface of the lead in the loading hole of a new proportional weight shall be at least 3 mm. inside from the bottom surface of the weight.

(e) The smallest denomination of the proportional weight shall be equivalent to the weight represented by the maximum graduation on the minor bar.

(f) The denominations of the proportional weight shall be 1 kg., 2 kg. 5 kg. or a multiple or submultiple by 10 or a power of 10 (100, 1,000 etc.) of any of these weights. Any number of proportional weights in any one of the aforesaid denominations may be included provided the total equivalent of all the proportional weights does not exceed the capacity of the weighing instrument.

NOTE.—While arriving at the capacity of weighbridge, the maximum graduation shown on the steelyard in the case of "loose-weight" type weighbridges and on the minor bar in the case of "non-loose-weight" type weighbridges shall not be taken into account.

(g) The total capacity of the machine shall include the capacity of graduated tare bar or bars wherever provided.

NOTE.—When tare bars are used and are not graduated except with a zero mark only, they shall not be taken into account when calculating the capacity of the machine. Ungraduated tare bars shall be marked with zero.

5. *Tests and test requirements.*—(a) The steelyard of a weighbridge shall remain horizontal at no-load.

(b) Weighbridges shall be tested to verify the accuracy of graduations or notches up to the total capacity.

(c) All loose proportional weights, where these are provided shall be tested and then suitably sealed to prevent tampering.

(d) With one quarter of the maximum load (or as near thereto as practicable) placed in the middle or at any of the corners of the platform, the weighbridge shall indicate the same weight within half the limits of error prescribed in Table 2 in col. 3 for non-dial type machines and in col. 4 for dial type machines.

TABLE 1.—Range of balancing arrangement.

Capacity.	Range of balancing arrangement.	
	Maximum 0.5 per cent of capacity.	Minimum 0.125 per cent of capacity each way.
(1)	(2)	(3)
1 t	kg 5	kg 1.25
2 t	10	2.50
3 t	15	3.75
5 t	25	6.2
10 t	50	12.5
15 t	75	19.0
20 t	100	25.0
25 t	125	31.0
30 t	150	35.5
40 t	200	50
50 t	250	62
60 t	300	75
80 t	400	100
100 t	500	125
150 t	750	188
200 t	1,000	250
300 t	1,500	375
400 t	2,000	500

(e) Weighbridges with steelyard arrangement shall be tested for sensitiveness and error at full load or as near to it as practicable. The sensitiveness and permissible error shall not exceed the limits prescribed in columns 2 and 3 respectively of Table 2.

(i) The machines shall be tested at loads corresponding to all major divisions or notches.

(ii) With the exception of sensitiveness test, the other tests mentioned above shall be carried out in a similar manner on dial type machine also. These machines shall comply with the requirements prescribed in column 4 of Table 2.

TABLE 2.—Sensitiveness and errors for weighbridges.

Capacity of the machine.	Verification.				Inspection.	
	Sensitive- ness when fully loaded.	Greatest error allowed in excess of deficiency when fully loaded for		Sensitive- ness when fully loaded.	Greatest error allowed in excess or deficiency when fully loaded for	
		Non-dial type machines.	Machines fitted with dials.		Non-dial type machines.	Machines fitted with dials.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 t ..	kg 1.1	kg 1.2	A weight corres-	kg 3.3	kg 2.4	A weight corres-
2 t ..	1.2	1.4	ponding to one	3.6	2.8	ponding to the
3 t ..	1.3	1.6	half the interval	3.9	3.2	interval between
5 t ..	1.5	2.0	between conse-	4.5	4.0	secutive gra-
10 t ..	2.0	3.0	cutive gradua-	6.0	6.0	duations.
15 t ..	2.5	4.0	tions.	7.5	8.0	
20 t ..	3.0	5.0		9.0	10.0	
25 t ..	3.5	6.0		10.5	12.0	
30 t ..	4.0	7.0		12.0	14.0	
40 t ..	5.0	7.0		15.0	14.0	
50 t ..	5.2	7.8		15.6	15.6	
60 t ..	5.5	8.5		16.5	17.0	
80 t ..	6.0	10.0		18.0	20.0	
100 t ..	6.5	11.5		19.5	23.0	
150 t ..	7.8	15.2		23.4	30.4	
200 t ..	9.0	19.0		27.0	38.0	
300 t ..	15.0	30.0		45.0	60.0	
400 t ..	20.0	40.0		60.0	80.0	

6. *Identification of parts.*—Detachable parts which may affect the accuracy of the weighbridge shall be indelibly numbered or marked so as to facilitate identification.

7. *Sealing.*—(a) Dial machines shall be fitted with a soft metal plug for receiving the seal of the verification authority and wherever practicable, this plug shall be passed through the dial and frame. The plug or stud fitted on the dial shall be so supported as to allow no risk of damage to the instrument.

(b) On weighbridges other than dial machines, a plug or stud shall be provided in a conspicuous position on the indicating lever or steelyard.

Part VIII—Crane weighing machines.

1. *Definition.*—A crane weighing machine is a weighing instrument designed on lever or spring principle specially constructed for suspension from the hook of a crane and fitted with a hook for lifting the load.

NOTE.—A lever type machine with open steelyard is illustrated in figure 1, figure 2 illustrates a dial type machine.

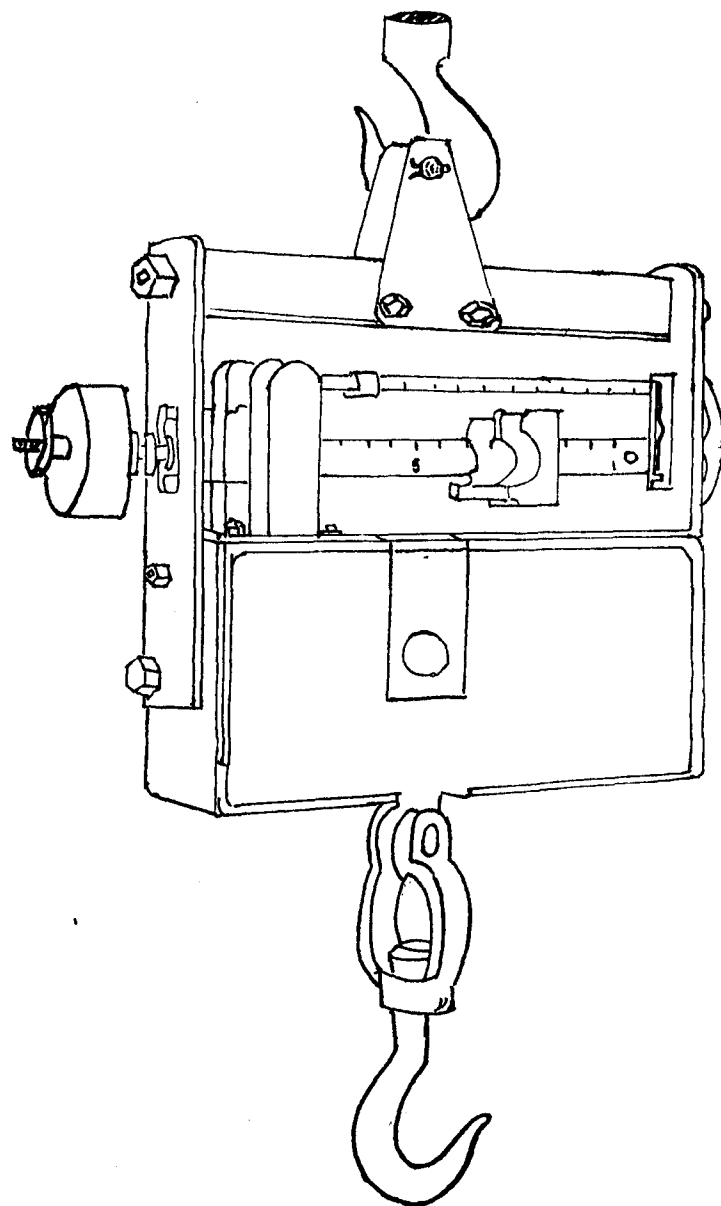
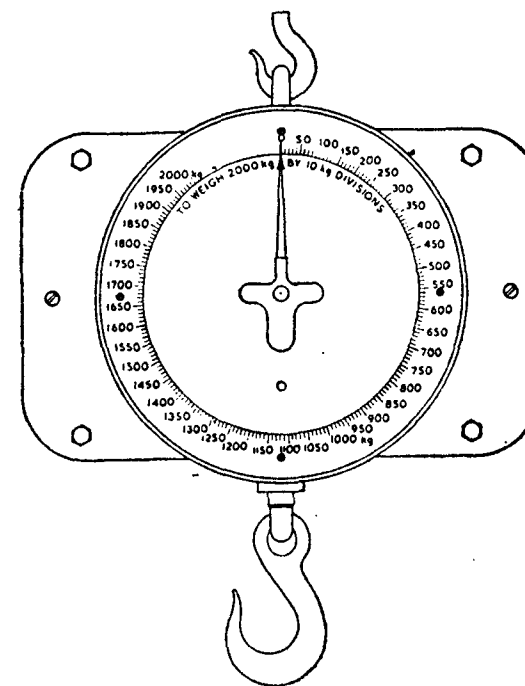


FIG. 1—Crane Weighing Machine, Steelyard Type.



15

FIG. 2—Crane Weighing Machine, Dial Type.

2. *Capacities.*—Crane weighing machines may be of the following capacities :—

500 kg., 1 tonne, 2 tonnes, 3 tonnes, 5 tonnes, 10 tonnes, 15 tonnes, 20 tonnes, 30 tonnes, 50 tonnes, 100 tonnes and 200 tonnes.

3. *General requirements.*—(a) In addition to the general requirements in Part I of the Schedule crane weighing machines shall comply with the following requirements :—

(i) The machine shall be sufficiently strong to withstand wear and tear in the exacting conditions under which it works.

(ii) No crane weighing machine shall become a permanent link in the lifting gear.

(iii) All working parts in crane weighing machine shall as far as possible, be suitably protected from the dust and damp of the atmosphere. In a lever type machine, the steelyard shall be made of corrosion-resistant steel to withstand atmosphere influence and shall be sufficiently rigid and accurate.

(iv) In dial type machine, the racks and pinions shall be of suitable hard wearing material and finished smooth.

(v) The range of balancing or adjusting arrangement shall not exceed 2 per cent of the capacity of the machine. (See Table 3).

(vi) In a steelyard type machine, there shall be free movement of the steelyard. In a dial type machine, the dial indicator shall work freely and return to its initial starting point after the load is removed.

(vii) In the case of a crane weighing machine provided with hooks, trays, or slings, these shall form essential parts without which it is not possible to balance the machine. These shall be identified with the machine.

(viii) The value of the smallest graduation on dials or minor steelyards and, wherever possible, major steelyards shall be 1 g, 2 g, 5 g, or any multiples of 10 or a power of 10 (for instance 100, 1000, etc.) of any of these weights.

(ix) The total capacity of the machines shall include the capacity of graduated tare bar or bars wherever provided.

NOTE.—When tare bars are used and are not graduated except with a zero mark only, they shall not be taken into account when calculating the capacity of the machines. Ungraduated tare bars shall be marked with a zero.

4. *Tests.*—(a) Crane machines of the steelyard type shall be tested for sensitiveness and greatest error at full load and shall comply with the requirements of Table I.

(b) Crane machines of the dial type shall be tested for greatest error at full load and shall comply with the requirements of Table 2.

(c) Spring type crane machines shall not be tested for sensitiveness.

(d) For spring type machines, the limits of greatest error shall be double of those prescribed for steelyard machines (See Table 1).

(e) Each numbered graduation shall be tested and the instrument shall be correct whether the test is carried out with increasing or decreasing loads.

(f) The intermediate graduations shall also be tested to see that they are correct and are at proper distance apart.

(g) No test for sensitiveness at a load lower than the full load shall be made.

5. *Sealing.*—Crane machines shall be fitted with an irremovable plug in a conspicuous part, either on the steelyard or on the dial, to receive the seal of the verification authority.

TABLE 1.—Limits for sensitiveness and Greatest errors for Crane Weighing Machines—Steelyard Type.

Capacity.	Verification.		Inspection.	
	Sensitiveness when fully loaded.	Greatest error allowed in excess or in deficiency when fully loaded	Sensitiveness when fully loaded.	Greatest error allowed in excess or in deficiency when fully loaded.
(1)	(2)	(3)	(4)	(5)
500 kg	100 g	200 g	300 g	400 g
1 t	1.1 kg	1.2 kg	3.3 kg	2.4 kg
2 t	1.2 kg	1.4 kg	3.6 kg	2.8 kg
3 t	1.3 kg	1.6 kg	3.9 kg	3.2 kg
5 t	1.5 kg	2.0 kg	4.5 kg	4.0 kg
10 t	2.0 kg	3.0 kg	6.0 kg	6.0 kg
15 t	2.5 kg	4.0 kg	7.5 kg	8.0 kg
20 t	3.0 kg	5.0 kg	9.0 kg	10.0 kg
30 t	4.0 kg	7.0 kg	12.0 kg	14.0 kg
50 t	5.2 kg	7.8 kg	15.6 kg	18.0 kg
100 t	6.5 kg	11.5 kg	19.5 kg	23.0 kg
200 t	9.0 kg	19.0 kg	27.0 kg	38.0 kg

TABLE 2.—Limits for greatest error for Crane Weighing Machines dial type.

Capacity.	Minimum weights corresponding to interval between successive graduations.	Greatest error allowed in excess or deficiency when fully loaded.	
		Verification.	Inspection.
(1)	(2)	(3)	(4)
500 kg	5 kg	A weight corresponding to half the interval between successive graduations.	A weight corresponding to the interval between successive graduations.
1 t	5 kg		
2 t	5 kg		
3 t	10 kg		
5 t	25 kg		
10 t	50 kg		
15 t	50 kg		
20 t	100 kg		
30 t	100 kg		
50 t	250 kg		
100 t	500 kg		
200 t	500 kg		

TABLE 3.—Range of balancing arrangement.

Capacity.	Range of balancing arrangement.
500 kg	10 kg
1 t	20 kg
2 t	40 kg
3 t	60 kg
5 t	100 kg
10 t	200 kg
15 t	300 kg
20 t	400 kg
30 t	600 kg
50 t	1,000 kg
100 t	2,000 kg
200 t	4,000 kg

Part IX—Automatic Weighing Machines.

1. *Definition.*—An automatic weighing machine may be defined as any weighing scale which has an integral mechanism for automatically admitting and discharging a load and may be fitted with an apparatus for counting or otherwise recording the number of loads handled.

2. *Capacities.*—Automatic machines shall be of the capacities as agreed upon between the purchaser and the seller.

3. *Design and construction.*—(a) Automatic weighing machines and their integral parts shall be identified with the machines, by an indelible number or other mark of identification.

(b) The adjusting mechanism shall be suitably secured or constructed so that it cannot be tampered with.

(c) The capacity of the automatic weighing machine shall be marked legibly on a conspicuous part of the machine.

4. *Tests.*—(a) Automatic machines shall be tested for errors according to the requirements of Table 1.

(b) The accuracy of the output of the machine shall be verified by reweighing in another weighing instrument not less than 20 continuous loads, or where practicable, the machine may be tested directly by the application of standard weights.

(c) In testing totalising machines, not less than 50 loads shall be passed over the machine, namely, 10 minimum loads, 10 maximum loads and 30 loads of the mean between the minimum and the maximum.

5. *Sealings.*—Automatic machine shall be fitted with a plug on the beam shank or dial of the machine to receive the seal.

TABLE 1.—Permissible errors for automatic machines.

Use.	Capacity.	Error (verification or inspection).	
Weighing small loads of tea, coffee, etc.	20 kg and upwards.	0.5 per cent of the load in excess only.	
Weighing grain, etc. . .	5 kg and upwards.	0.25 per cent of the load in excess or deficiency.	The allowances in these cases are subject to the proviso that the error tolerated shall not exceed the weight represented by half a minimum division, marked on the dial or steelyard.
Weighing coal, etc. . .	50 kg and upwards.	0.5 per cent of the load in excess or deficiency.	
"Totalising" machines used for weighing coal, etc.	500 kg and upwards.	0.5 per cent of the total load of 50 weighings, in excess or deficiency.	

Part X—Self-indicating and semi-self-indicating counter-type weighing machines.

1. *Definition*—(a) *Self-indicating Machine*.—A machine which on the application of the load to be weighed, indicates the whole of the load automatically. A typical self-indicating machine is illustrated in Figure 1.

(b) *Semi-self-indicating Machine*.—A machine which on the application of the load to be weighed, indicates automatically only a portion of the weight of the whole load leaving the remainder to be balanced by weights or sliding poises fitted to the tare or capacity bars or by any other suitable means. A typical semi-self-indicating machine is illustrated in Figure 2.

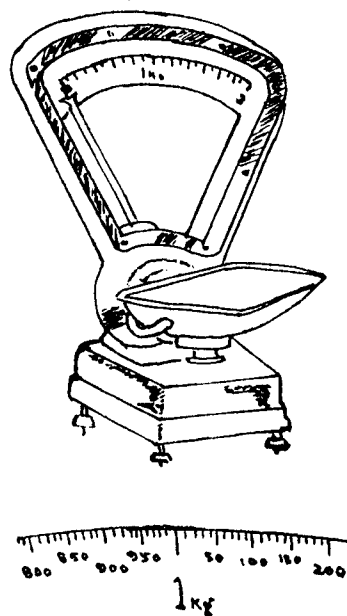


FIG. 1—Self-indicating machine.

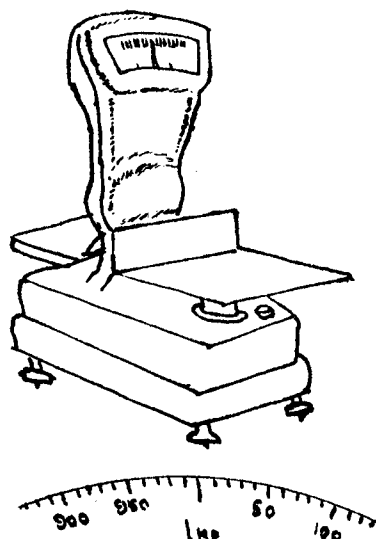


FIG. 2—Semi-self-indicating machine.

2. *Capacities*.—The self-indicating or semi-self-indicating machines may be of the capacities shown in Table 1.

3. *General requirements*.—(a) Self-indicating or semi-self-indicating machines are generally constructed by incorporating a beam or levers coupled to a pendulum or other type of resistance system, excluding springs, so as to produce an indicating arrangement for the machine. The arrangement of the lever system of machine shall be such that the horizontality of the goods and weight pan fittings throughout the movement of the beam is preserved. The machine shall be provided with dash pot or any other suitable arrangement so as to bring the pointer quickly to rest.

(b) The supports for the pans shall be of a suitable rigid structure. The pans shall be made of mild steel, stainless steel, brass or bronze, aluminium or its alloys, porcelain, enamel-coated steel, glass or plastic material.

(c) The bearing surfaces, knife-edges and points of contact of all stays, hooks and loops shall be of hard steel or agate. The knife-edges and bearings shall be so fitted as to allow the beam to move freely and the knife-edges shall rest on their bearings at practically their entire length. All levers and resistance mechanism shall be enclosed as far as possible.

(d) The machines shall have a balance box for minor adjustments. The balance box shall be permanently fixed, preferably beneath the weight pan, and shall be large enough to contain loose material to an amount up to one per cent of the capacity of the machine. No other adjusting contrivance shall be used. In case of self-indicating machines, the balance box shall be fixed below the goods pan.

(e) The chart of the machines shall be graduated into equal parts and the width apart of the graduations shall be not less than 1.5 mm. (unless magnification is provided on the chart) for a capacity of 10 kg and under and not less than 2 mm for a capacity above 10 kg. The weights corresponding to one half the interval between consecutive graduation marks shall not exceed

the greatest error allowed as shown in Table 1. The extremity of the pointer shall not exceed one millimetre in width and shall not be more than 3 mm. away from the chart. The position of the index when there is no load shall be clearly indicated by zero mark.

(f) The value of the minor graduation on the chart shall correspond to one of the weights in the series 1 g, 2 g, 5 g, or its decimal multiples of 10 or of powers of 10.

(g) The self-indicating and semi-self-indicating machines, excepting out of level scales, shall be provided with levelling screws and a circular bubble.

(h) When tare bars are graduated, they shall only be permitted provided that chart capacity and the total capacity (chart plus tare bar) comply with capacities shown in Table 1.

NOTE.—When tare bars are used and are not graduated except with a zero mark, they shall not be taken into account when calculating the capacity of the machine. Ungraduated tare bars shall be marked with zero.

4. *Tests*.—(a) All self-indicating and semi-self-indicating machines shall be tested on a horizontal level plane.

(b) The machines shall be tested throughout the full range of their capacity by progressively increasing the load, the permissible error shall not exceed the limits specified in Table 1.

(c) When the pans are loaded to half the capacity, there shall be no appreciable difference in the weight indicated on the dial when the load is moved within a distance from centre equal to one-third from the greatest length of the pan.

(d) When the goods pan is in the form of a scoop, the machine shall be correct to the prescribed limits of error if half the full load is placed against the middle of the back of the scoop and the other half in any position on the scoop.

(e) Self-indicating and semi-self-indicating machines shall not be tested for sensitiveness.

5. *Sealing*.—(a) Each machine shall be provided with a plug or stud of soft metal on a conspicuous part of the beam or body for receiving a seal. Such a plug or stud shall be made irremovable by under-cutting it or by some other suitable manner.

TABLE.—Limits for greatest error for self-indicating and semi-self-indicating counter-type weighing machine.

Capacity.	Maximum value of the minor graduation.	Greatest error allowed in excess or in deficiency when fully loaded.	
		Verification.	Inspection.
(1)	(2)	(3)	(4)
(A) Self-indicating machines—			
100 kg	200 g	100 g	200 g
50 kg	100 g	50 g	100 g
30 kg	100 g	50 g	100 g
20 kg	100 g	50 g	100 g
10 kg	50 g	25 g	50 g
5 kg	20 g	10 g	20 g
3 kg	10 g	5 g	10 g
2 kg	10 g	5 g	10 g
1 kg	10 g	5 g	10 g
500 g	5 g	2.5 g	5 g
200 g	2 g	1.0 g	2 g
100 g	1 g	0.5 g	1 g
(B) Semi-self-indicating machines—			
100 kg	100 g	50 g	100 g
50 kg	40 g	20 g	40 g
30 kg	30 g	15 g	30 g
20 kg	20 g	10 g	20 g
10 kg	10 g	5 g	10 g
5 kg	10 g	5 g	10 g
3 kg	10 g	5 g	10 g
2 kg	10 g	5 g	10 g
1 kg	10 g	5 g	10 g
500 g	4 g	2 g	4 g
200 g	2 g	1 g	2 g
100 g	1 g	0.5 g	1 g

NOTE.—The maximum error shall not exceed the value of half the minor division indicated on the chart.

Part XI—Person-Weighing Machines.

1. *Definition.*—(a) A person weighing machine means an instrument with compound levers and with a platform to receive the person to be weighed. The weight of the person is indicated with a steelyard or any other form of indicator or by a ticket printing device.

(b) Person weighing machine of steelyard, dial and ticket printing types are illustrated in Figures 1, 2 and 3 respectively. These drawings are illustrative only and do not specify any particular design.

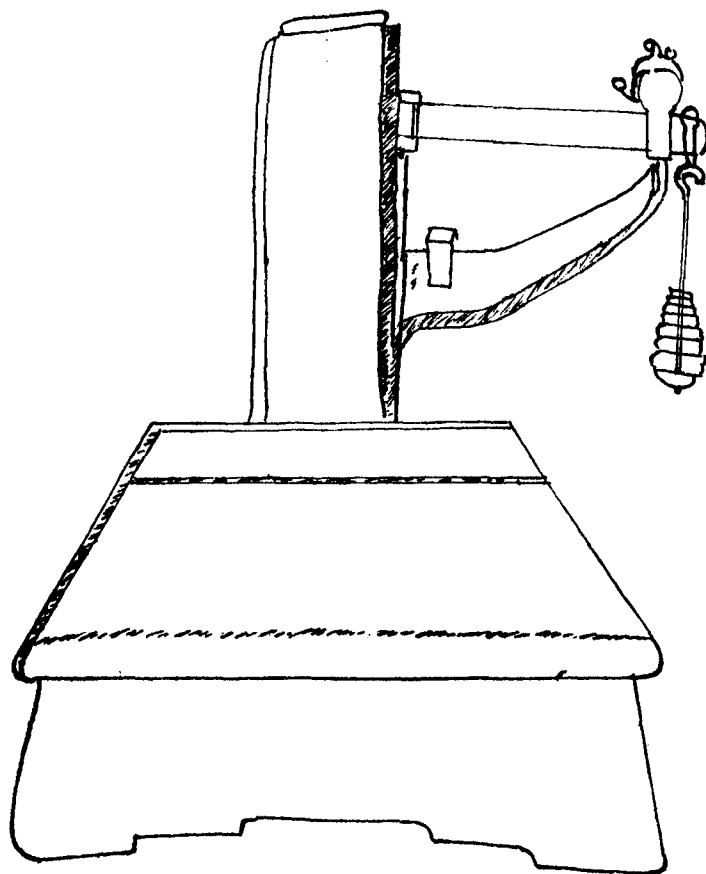


FIG. 1—Person Weighing Machine, Steelyard Type.

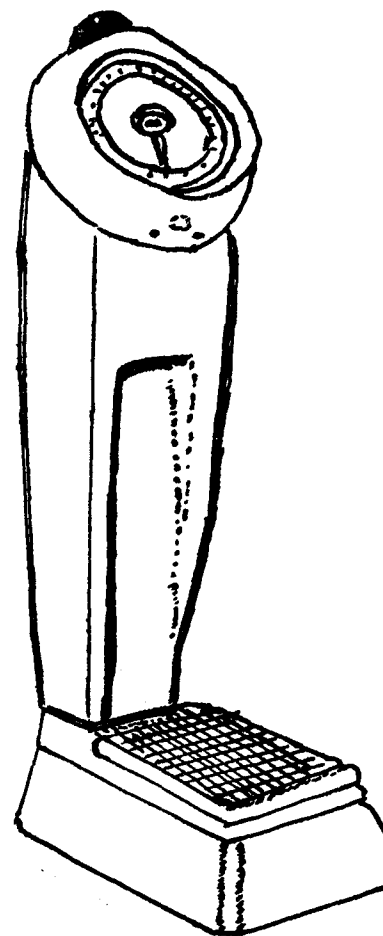


FIG. 2—Person Weighing Machine, Dial Type.

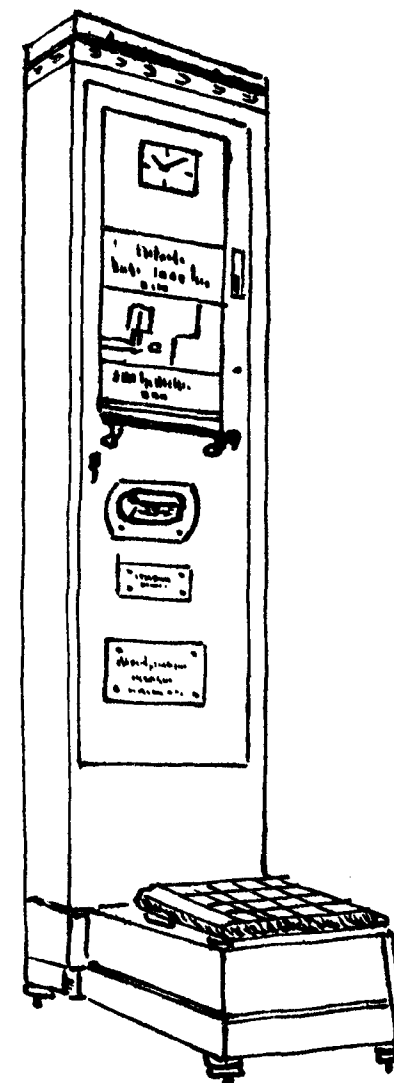


FIG. 3—Person Weighing Machine, Ticket Printing Type.

2. *Capacity.*—The person-weighing machine shall have a capacity not less than 120 kg.

3. *General requirements*—(a) *Platform.*—The maximum size of the platform shall be 400 × 350 mm. The platform shall not extend beyond the frame on any side.

(b) *Steelyard type machines.*—(i) The steelyard shall not have any readily removable parts except the support for proportional weights. The minimum travel of a steelyard shall be 10 mm. either way.

(ii) The top and bottom of the guide and/or steelyard shall be fitted with non-magnetic material, if these are made of ferrous material.

(iii) When the steelyard is provided with notches, the latter shall be suitably protected.

(iv) The value of the smallest divisions on the steelyard shall be graduated with 5 kg. × 50 kg. divisions.^a

(v) *Balancing arrangement.*—Where a balancing device is provided on the steelyard, the balance ball shall not be easily accessible. The balancing arrangement for daily wear and tear shall have a range not exceeding 0.5 per cent of the capacity of the machine and not less

than 0.125 per cent of the capacity each way. The balancing device containing the balancing ball shall be securely attached to the steelyard. The balancing ball shall be actuated by knurled headed bolt passing through it.

(c) *Dial type machines.*—(i) Racks and pinions shall be suitable hard-wearing material and shall be finished smooth.

(ii) The extremity of the pointer shall in no position be at a greater distance from the graduated surface of the dial than 5 mm. and shall be made to meet but not to obscure the graduation marks.

(iii) The dial shall be graduated into equal parts and the minimum width apart of the graduation shall not be less than 1.5 mm. The minimum graduation shall be 500 g.

(d) *Ticket printing type machine.*—(i) Racks and pinions shall be of suitable hard wearing material and shall be finished smooth.

(ii) The weight shall be legibly indicated on the ticket.

4. *Proportional weights.*—(a) All loose proportional weights shall be identified with the machine by a number or any other suitable mark of identification which shall be indelible. The counterpoise weights shall be marked with their equivalent weights in the following manner:

किलो 5 kg.

(b) Proportional weights shall be hexagonal in shape with a slot of suitable size to allow them being placed on the counter balance.

(c) The proportional weights shall be made of cast iron or brass.

(d) The proportional weights shall have one rectangular loading hole which shall be undercut or tapering outside so as to hold lead securely for adjustments. The undercut hole shall be of reasonable size so as to accommodate the lead required for adjustments. The surface of the lead in the loading hole shall not be less than 2 mm. inside from the bottom surface of the weight.

(e) The steelyard type person-weighing machine shall be provided with suitable proportional weights. The denominations of proportional weights shall be 1 kg., 2kg., 5 kg. or a multiple or sub-multiple by 10 or a power of (10, 100, 1,000) etc. The total value of the proportional weight shall not exceed the capacity of the machine. For the purpose of calculating total capacity the graduation on the steelyard shall not be taken into account.

5. *Tests.*—(a) The steelyard of the person weighing machine with steelyard arrangement shall remain horizontal at no load on the platform.

(b) With load weighing one-quarter of the maximum capacity of the machine or as near thereto as is practicable, the weighing machine shall indicate the same weight within half the prescribed limits of error whether the load is placed in the centre or on any of the four corners of the platform.

(c) The machines shall be tested to verify the accuracy of graduations up to the total capacity.

(d) Person weighing machines with the steelyard arrangements shall be tested for error as well as for sensitiveness at full load. The permissible errors and sensitiveness are given in Table 1.

(e) Person-weighing machine provided with dial type indicator or ticket printing device shall be tested for errors only. No sensitiveness test shall be taken on such machines. The permissible error at any load shall not exceed the limits prescribed in Table 1.

TABLE 1.—Limits for greatest error for person weighing machines.

Type of machine.	Sensitiveness when fully loaded.	Greatest error allowed in excess or in deficiency when fully loaded.	
		Verification.	Inspection.
(1)	(2)	(3)	(4)
1 Steelyard	25 g	50 g	100 g
2 Dial type	..	250 g	500 g
3 Ticket issuing type	..	500 g	1 kg

SCHEDULE VI.

(See rule 9.)

Specifications for Commercial Measuring Instruments.

Part I—General requirements.

1. *Definitions.*—A measuring instrument is a mechanism or machine designed to measure and/or deliver liquid products by volume.

The expression 'correct' means correct within the limits of errors prescribed in these rules.

2. Measuring instruments of the following categories are included in these specifications:—

(a) Dispensing pumps.

(b) Meters used for the measurement of quantities of oil and/or liquids flowing through pipelines or in package filling or deliveries to and from oil tanks, wagons, road vehicles, aviation refuellers, etc.

(c) Volumetric container filling machines.

(d) Stroke measures commonly used in measuring out lubricating oils and other petroleum products.

3. *General requirements.*—(a) All commercial measuring instruments viz., dispensing pumps, meters and volumetric filling machines shall be conspicuously, clearly and prominently marked for the purpose of identification, with the name, initials or registered trade mark of the manufacturer.

(b) The manufacturer's name or the registered trade mark shall be such as will not be mistaken for the stamp or seal of the Inspector.

(c) Every volumetric container filling machine shall have the capacity of the container prominently and indelibly marked on it.

(d) The mechanism or devices attached thereto or used in connection therewith shall be so constructed, assembled or installed as to minimise the possibility of fraudulent practices.

(e) All graduations indicating quantities delivered shall be clearly and indelibly marked.

(f) Every measuring instrument of a fixed type shall be so disposed that the purchaser has a clear and unobstructed view of the quantity indicated.

(g) No measuring instrument shall be so arranged as to deliver measured quantities at more than one outlet.

(h) Every graduated scale or other indicating device of the measuring instrument shall be in numerical sequence, reading in one direction only.

4. *Tests.*—(a) All measuring instruments shall be tested under normal operating conditions.

(b) The measuring instrument shall not be stamped unless it is complete with all parts and attachments concerned with the operation of measurement and/or delivery.

(c) The measuring instrument shall be provided with one or more plugs and suitable means of sealing them to prevent tampering with stops or other adjustable parts affecting the quantity delivered. Seals shall be provided by the makers or users of the machines for Inspector's stamp.

(d) Measuring instruments which are not portable, as well as portable measuring instruments of the types the Controller may specify in this behalf, shall be verified and stamped in situ, in addition to any preliminary test in the manufacturer's or dealer's premises. Such a preliminary test shall be made at the request of the manufacturer or dealer.

Part II—Dispensing Pumps.

1. *Definitions.*—(a) A dispensing pump is a measuring instrument used in conjunction with a storage tank or tanks for effecting deliveries of liquid products by specified volumes.

(b) *"Wet Hose" System.*—A type of device designed to be operated with the discharge hose full of liquid at all times. A "wet hose" is the discharge hose in this type of device.

(c) *"Dry Hose" System.*—A type of device in which the discharge hose is completely drained following each delivery. A "dry hose" is the discharge hose in this type of device.

2. *Types.*—Dispensing pumps shall be either of the meter type or container type.

3. *General requirements.*—A dispensing pump shall essentially consist of—

- (i) Suitable casing or hosing,
- (ii) pumping unit,
- (iii) metering unit or volumetric container,
- (iv) register for quantities; and
- (v) flexible hose with nozzle.

4. Every dispensing pump shall be provided with an individual sales indicator, graduated to indicate all possible deliveries. Any other counting or totalising device that may be provided shall be so arranged as to avoid any possibility of confusion with the individual sales indicator.

5. A dispensing pump or meter type shall be so constructed that, after a particular delivery cycle has been completed by movement of the starting lever to its shut-off position, an effective automatic interlock shall prevent a subsequent delivery being started until the indicating elements have been returned to their correct zero position.

6. A dispensing pump of container type shall be so constructed that the individual scales indicator shall register only when the discharge from each container has commenced. A notice shall be prominently exhibited on the pump panel to indicate clearly and prominently the following:—

PLEASE ENSURE BEFORE STARTING DELIVERY.

- (i) Sales indicator is set at zero.
- (ii) Container is full.

7. Dispensing pumps of container type shall be provided with observation windows or other means for showing clearly that the container or containers are properly charged and discharged.

8. Dispensing pumps delivering the liquid under pressure shall work on the "wet hose" system, fitted with a nozzle having combination control valve and automatic pressure discharge valve which should operate under the pressure at which the pump is designed to deliver.

9. Dispensing pumps delivering liquid under gravity shall work on the "dry hose" system. The "dry hose" shall be of such length and stiffness as to facilitate complete and rapid drainage of the hose pipe and shall be provided with a nozzle without any valve.

10. The length of the discharge hose on a dispensing pump shall not exceed 5 meters from the outside of the hosing of the pump to the inlet end of the discharge nozzle.

11. A dispensing pump of the meter type shall have an effective air eliminator unit situated after the pumping unit and immediately preceding the metering unit.

12. A dispensing pump of the container type shall have a suitable air vent to preclude the possibilities of air trap in the volumetric container.

13. *Tests.*—(a) All dispensing pumps shall be tested for accuracy of discharge as described hereunder.

(b) A dispensing pump shall be tested under practical working conditions with the liquid that the instrument is intended to deliver.

(c) All dispensing pumps shall be verified by check measures. The check measures may be of the denominations 1, 5, 10 and 20 litres.

(d) Every check measure shall be verified against the appropriate working standard measure at least once in every period of six months and duly sealed.

(e) Before commencing checking of dispensing pump, the pump shall be run for a few minutes to ensure that all the units are functioning smoothly and also the discharge hose has been wetted.

(f) A dispensing pump before being tested for accuracy shall be tested for leakage by being first fully primed.

14. The procedure for testing a dispensing pump shall be as follows:—

(a) The standard check measure shall first be filled to wet the entire inside surface. It shall then be emptied.

(b) The pointer (meter type) or reading (container type) of the recording mechanism shall then be set to zero.

(c) The pump shall be operated to dispense the liquid into the standard check measure until the pointer (meter type) is at zero position again or the reading (container type) records the capacity of the check measure.

(d) If the quantity of liquid delivered is in error beyond the permissible limits, the instrument shall be adjusted so that it delivers a quantity within permissible limits of error.

(e) Steps (b), (c) or (d) shall be repeated until the pump gives two consecutive deliveries within permissible limits of error.

(f) If the instrument has been found to give correct measure in the initial test itself, further test of accuracy shall be made and recorded.

15. Every dispensing pump shall deliver correctly at reasonable uniform speed which shall be not less than 10 litres per minute.

16. The permissible limits of error are specified below:—

Quantity.	Verification (errors in excess).	Inspection.	
		Error (Excess).	Error (Deficiency).
20 litres	100 ml	Same as on Verification	50 ml
10 litres	50 ml		25 ml
5 litres	30 ml		15 ml
1 litre	10 ml		5 ml

No error in deficiency shall be permitted during verification.

17. *Sealing and Stamping.*—After adjustment for correct delivery lead-and-wire seal shall be applied in such manner that no further adjustment can be made, without mutilating the seal or seals. Plain wire shall not be used for lead-and-wire seal or seals. Inspector's stamp on the lead seal or seals shall be affixed by means of a plier. Inspector's stamp shall also be marked on the name-plate fixed on the dispensing pumps.

18. A name plate to be fixed on the petrol pump for identification shall be of the shape and design shown below:—

* Weights and measures (Enforcement Act, 1958).

(Name of the Owner of the Pump and Pump Number.)

.....
Petrol Litres.
Capacity of ——— D. Pump.
H.S.D.

**
.....
.....

* Name of the State.

** Columns for Inspector's Stamps.

19. *Capacity.*—The capacity of a dispensing pump of meter type shall be the maximum graduation on the dial or register.

The capacity of a dispensing pump of container type shall be the capacity of the container or where there is more than one container the aggregate capacity of the containers,

Section VII

(See rule 11.)

Abbreviation of Denominations.

1. Decimal multiples and sub-multiples—

<i>Prefix.</i>							<i>Value in terms of unit.</i>	<i>Abbreviation.</i>
Kilo	..	..	..	..	..	..	1000	k
Centi	..	..	..	..	..	..	0.01 (10 ⁻²)	c
Milli	..	..	..	..	..	..	0.001 (10 ⁻³)	m
Micro	..	..	..	..	..	..	0.000001 (10 ⁻⁶)	μ

2. Weight—

<i>2. Weight—</i>	<i>Denomination.</i>	<i>Value.</i>	<i>Abbreviation.</i>
Tonne		1000 kg.	t
Quintal		100 kg.	q
Kilogram		1 kg.	kg
Gram		1 g.	g
Milligram		1 mg.	mg
Carat		200 mg.	c

3. Capacity—

Kilolitre	..	..	..	..	..	1000 l.	kl
Litre	..	..	..	..	..	l	l
Millilitre	..	..	..	..	..	1 ml.	ml

4. Volume—

Cubic metre	..	..	..	..	m ³	m ³ or cu m*
Cubic centimetre	..	..	..	..	cm ³	cm ³ or cu cm*
Cubic millimetre	..	..	..	..	mm ³	mm ³ or cu mm*

5. Length—

Kilometre	..	..	..	..	..	1000 m.	km
Metre	..	..	..	..	..	1 m.	m
Centimetre	..	..	..	..	..	1 cm.	cm
Millimetre	..	..	..	..	..	1 mm.	mm
Micron	..	..	..	..	..	1/1000 mm or 10 ⁻³ mm.	μ

6. Area—

Square kilometre	..	..	..	..	1,000,000 m ² .	km ² or sq km*
Square metre	..	..	..	..	m ²	m ² or sq m*
Square centimetre	..	..	..	..	cm ²	cm ² or sq cm*
Square millimetre	..	..	..	..	mm ²	mm ² or sq mm*

* Both these abbreviations are current, but the first set should preferably be used.

NOTE.—No change shall be made in the abbreviation to indicate plurality.

SCHEDULE VIII.

{See rule 12.}

(Certificate of Verification.)

GOVERNMENT OF MADRAS.

Receipt No.

MADRAS WEIGHTS AND MEASURES (ENFORCEMENT) ACT, 1958.

Verification certificate No. _____

Date _____

Name of Inspector

Centre

Centre **Camp**

I hereby certify that I have this day verified and stamped/rejected the undermentioned weights, measures, etc., belonging to (name and address) Trader under the above Act.

No.

Quantity.	Denomination.		Weighing instruments.		Measuring instruments.		Verification fee.	Cartage conveyance adjustment charges.
	Weights.	Measures.	Capacity.	Class.	Length.	Capacity.		
	Receipt No.	dated		Total Rs.		Grand Total Rs.			Rs. P.	Rs. P.

W R — In case of rejection detailed reasons to be given overleaf.

Repaired by

Licence No.

Next verification due on

Next verification are on

I This certificate shall be exhibited in a conspicuous place where the annate is received, and the annate duly stamped/rejected.

Inspector, Weights and Measures.

Signature of the Trader,

SCHEDULE IX.

(See rule 13.)

Maximum permissible errors in net weight or measure of packed commodities.

Packed commodities.		Permissible error.
1 Raw cotton	 Packed in standard bales of 180 kg.	± 5 kg.
2 Cotton yarn	 (a) Full bale of 200 kg. ..	± 10 kg.
	 (b) Three-quarter bale of 150 kg. ..	± 7.50 kg.
	 (c) Half bale of 100 kg. ..	± 5 kg.
	 (d) Quarter bale of 50 kg. ..	± 2.5 kg.
3 Cement	 At factory	± 2 per cent.
	 In retail trade	± 3 per cent.
4 Tea	 Retail packages of 500 g, 250 g, and 100 g.	± 1 per cent at the place of packing.
	 Chests packed at places other than tea gardens.	± 1 per cent at the place of packing. (The net weight of packages or chest of a tea shall be verified only at the place of packing.)
5 Jute cloth	 Length of jute	± 0.5 per cent.
6 Paint	.. ..	± 1 per cent.
7 Beer and spirits	 Filled in bottles :	
	 Beer	± 2.0 per cent.
	 Spirits	± 2.0 per cent.
	 Subject to maximum of 7.5 ml. (The net measure of beer or spirit in bottles shall be verified only at the place where they are bottled.)	
8 Biscuits	 Net weight or packages below 500 g.	± 7 per cent.
	 500 g. and above but below 1 kg.	± 6 per cent.
	 1 kg. and above but below 2 kg. ..	± 5 per cent.
	 2 kg. and above	± 2.5 per cent.
9 Cotton cloth	 (a) Full Bale of 1,500 m. ..	± 100 m.
	 (b) Three quarter bale of 1,125 m. ..	± 75 m.
	 (c) Half bale of 750 m. ..	± 50 m.
	 (d) Quarter bale of 375 m. ..	± 25 m.
10 Milk	 Bottle of capacity 500 ml. ..	± 10 ml.
	 Bottle of capacity 250 ml. ..	± 8 ml.
	 Bottle of capacity 200 ml. ..	± 8 ml.
11 Infant food	 Packages with net content between 1 kg. and 2 kg.	± 3 per cent.
	 Packages between 500 g. and 1,000 g.	± 4 per cent.
	 Packages up to 500 g.	± 5 per cent.
12 Food grains	 Bags of 90 to 100 kg.	± 0.5 per cent at the place of packing.
13 Sugar	 White sugar packed in bags holding 1 quintal.	± 0.1 per cent.
14 Miscellaneous goods	.. ..	An error not exceeding 7 per cent.

SCHEDULE X.

(See rule 14.)

Procedure to be followed for inspection verification and stamping of Commercial weights and measures and weighing and measuring instruments used or for use in transactions.

Part I—Weights and measures.

1. *Weights.*—(a) All weights before stamping shall be verified for correctness against the corresponding working standard weight in the appropriate working standard balance subject to the permissible errors specified ;

(b) Weights shall be stamped on the lead in the loading hole at the bottom of the weight provided that weights without an adjusting hole shall be stamped on the undersurface.

(c) No weights used in gold and silver trade shall be stamped unless they are bullion weights.

(d) No weights used in pearl and precious stone trade shall be marked unless they are carat weights.

2. *Liquid measures of capacity.*—(a) Liquid capacity measures shall be tested by filling the working standard measures with water and emptying the contents of the working standard into the measure under test.

(b) In testing a glass measure the capacity of which is not defined by the brim, the level of the water shall be taken at the bottom of the meniscus.

(c) Where the capacity is indicated by a line, the measure shall be tested to the bottom of the line.

3. *Measures of length.*—(a) Every measure of length shall be verified by comparison with the working standard.

(b) A link measure, or woven metallic or steel tape measure, shall be tested when subject to a tension or pull as follows :

Link measure .. 8 kg

Woven metallic tape measure .. 1 kg

sure.

Steel tape measure .. 1 kg for 1 m and 2 m tapes, and 5 kg for 10 m 15 m 20 m, 30 m and 50 m tapes.

(c) The measure under test shall be supported throughout its whole length on a plane and even base.

(d) Tape measure which are intended to be used in cases may be accepted for verification and stamping if submitted even without the case.

(e) All non-flexible measures of length shall be stamped on the rivets provided in the measure.

(f) In the case of tape measure, the stamp shall be placed on the metal strip attached to the beginning of the measure.

(g) In the case of link measures, the stamp shall be placed either on a metal table or disc, permanently attached to the measure or on the brass handle.

4. *Volume measures.*—(a) All measures of volume shall be examined with the object of discovering flaws or want of straightness and proper right angles at the corners.

(b) Every measure of volume shall be verified by comparing length of each side against the working standard of length at or near the normal temperature.

(c) The limits of errors in the case of lengths of the sides of measures of volume shall be the same as prescribed for linear measures.

(d) All measures of volume shall be stamped near the top edge or brass plate securely fastened to them.

Part II—Weighing and measuring instruments.

1. *General.*—Weighing and measuring instruments shall be tested to conform to the specifications given in Schedules V and VI.

2. *Beam scales.*—(a) On beam scales, the verification stamp shall be placed on the stud or plug on the beam, immediately under or over the central knife-edge.

(b) The Inspector may stamp the plug or stud in the same manner as he would stamp a weight.

(c) *Counter machines, spring balances, steel yards and automatic machines.*—The verification stamp shall be placed upon the plug or stud provided in the instrument for that purpose.

3. *Platform machines and weigh bridges.*—(a) Weigh bridges, platform machines and such other weighing instruments as the Controller may specify in this behalf, shall be verified and stamped *in situ* in addition to any preliminary test in the manufacturer's or dealer's premises. Such a preliminary test shall be made at the request of the manufacturer or dealer.

(b) The verification stamp shall be placed upon the plug or stud provided for the purpose in the machine.

4. *Crane machines.*—(a) Machines in which it is necessary in order to get a correct weight indication to twist the load hook, shall not be stamped unless a prominent notice to this effect is permanently affixed to the machine.

(b) The verification stamp shall be placed upon the plug or stud provided for the purpose in the machine.

Part III—Calibration of vehicles tanks for petroleum products and other liquids.

1. *Definitions.*—(a) *Vehicle tank.*—An assembly (used for the delivery of liquids) comprising a tank which may or may not be sub-divided into compartments, mounted upon a vehicle together with its necessary piping, valves, meters, etc.

(b) *Compartment.*—The entire tank, when this is not sub-divided otherwise any one of these sub-divisions of a tank designed to hold liquid.

(c) *Calibration.*—Verification and stamping of the capacity of the vehicle tank.

(d) *Dip stick.*—A square or rectangular metal bar or brass or any other suitable hard material used to determine the depth of the liquid in the tank.

(e) *Ullage stick.*—A T-shaped metal bar of brass or other suitable material used to determine the depth of the level of liquid from the top of the dip pipe.

(f) *Ullage indicator.*—A device belted to the inside of a manhole neck ring with the indicator set to any desired level to which liquid in the tank is required to be filled.

2. *Testing medium.*—(a) *Compartment Testing.*—Water or other appropriate liquid shall be used as a testing medium in determining the capacity of a vehicle tank compartment.

(b) *Meter testing.*—A vehicle tank meter shall be tested with a liquid of the same character or of approximately the same viscosity as the liquid to be commercially measured through the meter.

3. *Equipment and tools.*—The following equipment and tools are required for calibration of vehicle tank.

(a) *Proving measures.*—When available, shall be checked for accuracy against an appropriate working standard measure.

(b) *Calibrated Bulk Meter.*—An accurate meter fitted with a pre-set valve, aid eliminator and strainer, which has been checked for accuracy against appropriate working standard measure.

(c) A set of standard commercial measures.

(d) Other equipment and tools, viz., hose pipes, scribe, punch, try square, tyre pressure gauge, hammer, etc.

4. *Calibration procedure.*—(a) Vehicle tanks used as measure shall be calibrated as capacity measures. In the case of meter equipped tanks, the meter shall be treated as a separate measuring instrument for purpose of calibration.

(b) The compartment capacity or capacities shall be taken as including the capacities of the delivery line leading from the emergency, safety or master valve to the outlet valve (discharge valve) provided that in the case of vehicle compartments terminating in a single delivery pipeline fitted with an outlet valve, the compartment capacity or capacities shall be taken as excluding the capacity of the delivery pipeline. A notice shall be prominently exhibited on the vehicle tank indicating clearly and indelibly the following:

Marked capacity includes capacity of delivery line;

or

Marked capacity excludes capacity of delivery line as the case may be. The safety or master valve shall be positioned at the lowest point of outlet from the compartment.

(c) The proving measure or bulk meter should be mounted on an overhead gantry or a separate framework in a convenient position above a firm and level platform preferably of concrete on which the vehicle stands during calibration.

(d) The vehicle shall be placed in a level position before commencing calibration as the accuracy of calibration depends on the level of the tank; the sequence in which compartments are calibrated should be such as to minimise unequal spring deflection on the axles of the vehicle.

(e) The front and rear tyres of the vehicles should be at the correct pressure. The tyres should be inspected for wear which should be reasonably even and there should not be excessive difference in wear in the tread between the front set of tyres and the rear set at the time of calibration.

(f) The interior of the compartment should be inspected and cleaned where necessary.

(g) Before starting calibration, the pipelines, outlet valves and other connections shall be tested against leakage by partially filling and draining each compartment in turn through the outlet valve. During the process sufficient quantity of the testing medium should be introduced inside the compartment to wet the internal surface of the tank and pipelines.

(h) After taking the precautions mentioned above, the compartment to be calibrated shall be filled with appropriate proving measures or bulk meters to the marked capacity of the compartment with the delivery lines leading to the outlet valve full or empty as provided in (b) above. The dip/ullage mark shall be taken carefully and the line shall be cut on the dip/ullage stick at right angles to the axis with the help of try-square and scriber. If an ullage indicator is used, it shall be correctly set and sealed.

(i) A mark should also be made on the dip stick to indicate the proof line which is the level of the top surface of the dip pipe. In the case of ullage stick, the distance from the ullage point to the T-Joint should be marked on the stick.

(j) Each compartment should be left full before proceeding to the next in the sequence.

5. *Permissible errors.*—(a) Proving measures shall have the following capacities and shall be adjusted within the following permissible errors:—

Capacity litres.	Permissible errors milli litres plus or minus.)
50	50
100	100
200	200
500	500
1,000	1,000
1,500	1,500
2,000	2,000
5,000	5,000

(b) The maximum error for vehicle tank compartments shall be 0.05 per cent in excess of the marked capacity of the compartments.

6. *Marking.*—(a) The vehicle shall have a brass plate revetted in a prominent position of it to receive the Inspector's stamps. The brass plate shall bear the following particulars.

Title of Weights and Measures Act; Name of owner of vehicle; vehicle Registration number; and the serial number and capacity of each compartment, space would be provided on the plate for the Inspector's stamps. Figure 1 shows a simple design for a plate.

(b) The capacity of the compartment shall be indelibly marked on the manhole cover of the compartment and also painted on each side of the compartment so that it is clearly visible. If there are more than one compartments, then each compartment shall have its capacity marked separately as above and the compartments numbered serially. The number of the compartment shall also be marked on the discharge valve pertaining to the compartment.

(c) The vehicle registration number as well as the capacity of the compartment shall be indelibly marked on the dip/ullage stick at the top end. If there is more than one compartment, the different faces of the dip stick may be used for markings and each face shall bear the vehicle number, the serial number of the compartment, the proof and dip lines of that compartment and the capacity of the compartment.

THE MADRAS WEIGHTS AND MEASURES (ENFORCEMENT) ACT, 1958.

Name of the Company :

Vehicle Tank No.

Compartment number.	Compartment capacity. (in litres.)	Space for Inspector's stamp.

FIG. 1 NAME PLATE.

SCHEDULE XI.

(See rule 16.)

Fees payable for verification and stamping commercial weights and measures and weighing and measuring instruments used in transactions for trade, business or commerce.

1. Weights—

(a) Bullion weights—

	RS.
20 kg	2 00
10 kg	2 00
5 kg	2 00
2 kg	2 00
1 kg	2 00
500 g	1 00
200 g	1 00
100 g	1 00
50 g	1 00
20 g	1 00
10 g	1 00
5 g	1 00
2 g	1 00
1 g	1 00
500 mg	0 50
200 mg	0 50
100 mg	0 50
50 mg	0 50
20 mg	0 50
10 mg	0 50
5 mg	0 50
2 mg	0 50
1 mg	0 50

(b) Brass weights (other than bullion) —

RS. P.

1 kg.	0 75
500 g.	0 20
200 g.	0 20
100 g.	0 20
50 g.	0 20
20 g.	0 20
10 g.	0 20
5 g.	0 20
2 g.	0 20
1 g.	0 20

(c) Sheet metal weights (other than bullion) —

500 mg.	0 20
200 mg.	0 20
100 mg.	0 20
50 mg.	0 20
20 mg.	0 20
10 mg.	0 20
5 mg.	0 20
2 mg.	0 20
1 mg.	0 20

(d) Iron and steel weights—

50 kg.	0 75
20 kg.	0 75
10 kg.	0 75
5 kg.	0 75
2 kg.	0 75
1 kg.	0 75
500 g.	0 20
200 g.	0 20
100 g.	0 20
50 g.	0 20

(e) Carat weights—

500 c.	1 00
200 c.	1 00
100 c.	1 00
50 c.	1 00
20 c.	1 00
10 c.	1 00
5 c.	1 00
2 c.	1 00
1 c.	1 00
50/100 c.	0 50
20/100 c.	0 50
10/100 c.	0 50
5/100 c.	0 50
2/100 c.	0 50
1/100 c.	0 50
0.5/100 c.	0 50

2. Liquid capacity measures (including dispensing measures) and dry measures—

Above 100 litres Rs. 2 for the first 100 litres.
Rs. 2 for every additional 100 litres or part thereof.

	RS.	P.
100 l.	2	00
50 l.	2	00
40 l.	2	00
20 l.	2	00
10 l.	2	00
5 l.	1	00
2 l.	1	00
1 l.	1	00
500 ml.	0	50
200 ml.	0	50
100 ml.	0	50
50 ml.	0	50
20 ml.	0	50
10 ml.	0	50
5 ml.	0	50
2 ml.	0	50
1 ml.	0	50

Special measure (18.5 l.) for petroleum 2 00

Special glass beaker measure (300 ml.) for the liquor trade. 0 50

Peg measures (60 ml. and 30 ml.) for the liquor trade. 0 50

3. Length measures—

0.5 metre	0	25
1 metre	0	50
Over 1 metre	1	00
Above 100 metres and not exceeding 500 metres ..	4	00
Above 500 metres and not exceeding 1,000 metres ..	6	00

Rs. 6 for the first 1,000 metres
and Rs. 3 for every 1,000 metres
or part thereof. Subject
maximum of Rs. 45.

4. Weighing instruments other than beam scales of Classes C and D—

Capacity.	Fees per instrument.	
Above 50 metric tonnes	Rs. 75 for the first 50 metric tonnes; Rs. 25 for each additional 25 metric tonnes or part thereof.	
	RS.	P.
Above 25 metric tonnes and not exceeding 50 metric tonnes.	75	00
Above 10 metric tonnes and not exceeding 25 metric tonnes.	40	00

Capacity.	Fees per instrument.	
	RS.	P.
Above 5 metric tonnes and not exceeding 10 metric tonnes.	30	00
Above 1 metric tonne and not exceeding 5 metric tonnes.	20	00
Above 250 kg. and not exceeding 1 metric tonne	15	00
Above 50 kg. and not exceeding 250 kg. ..	7	50
Above 20 kg. and not exceeding 50 kg. ..	4	50
Above 10 kg. and not exceeding 20 kg. ..	3	00
Above 500 g. and not exceeding 10 kg. ..	2	00
Not exceeding 500 g.	1	50

NOTE.—Where two weigh tables or platforms are connected to one steel-yard or office machine, two separate fees in accordance with the capacity of the respective weigh tables or platforms are payable.

5. Beam scales, Classes C and D—

	RS.	P.
Above 1 metric tonne	20	00
Above 250 kg. and not exceeding 1 metric tonne	10	00
Above 50 kg. and not exceeding 250 kg. ..	5	00
Above 20 kg. and not exceeding 50 kg. ..	3	00
Above 10 kg. and not exceeding 20 kg. ..	2	50
Above 500 g. and not exceeding 10 kg. ..	2	00
Not exceeding 500 g.	1	00

6. Measuring Instruments Capacity—

	Fees per instrument.	
(a) Exceeding 100 litres	Rs. 30.00 for the first 100 litres, Rs. 15.00 for each additional 50 litres or part thereof subject to a maximum of Rs. 500.	
	RS.	P.
(b) Exceeding 50 litres but not exceeding 100 litres ..	30	00
(c) Exceeding 25 litres, but not exceeding 50 litres ..	20	00
(d) Not exceeding 25 litres	15	00

7. Measuring instruments (linear)—

(a) Exceeding 1,000 metres	Rs. 6 for the first 1,000 metres plus Rs. 1.50 for each additional 100 metres or part thereof subject to a maximum of Rs. 45.	
	RS.	P.
(b) Exceeding 500 metres and not exceeding 1,000 metres.	6	00
(c) Exceeding 100 metres and not exceeding 500 metres.	4	00
(d) Not exceeding 100 metres	3	00

SCHEDULE XII.

[See Rule 16 (3).]

Fees payable for adjustment of weights, measures, weighing and measuring instruments by Inspectors of Weights and Measures.

In all cases where lead is required, the party who presents the weights, measures, weighing and measuring instruments shall provide lead.

Item.	Adjustment.	Fees to be charged.
1.	Minor adjustment to weights, measures, etc., stated as under -	
	(i) Scrapping off lead in excess upto and inclusive of 1 g. or adding lead to make up the deficiency up to 1 g. from the adjustment hole in order to bring the weight within the limits of prescribed tolerance.	No fees is to be charged.
	(ii) Filing off slightly the top of cylindrical liquid measure or slightly tapping the conical liquid measure to bring the contents of the measures within the limits of prescribed tolerance.	No fee is to be charged.
	(iii) Filing off slightly knife edges of beam scales to bring it within the limits of prescribed tolerance.	
2.	Other minor adjustments as given under--	
	(i) Scrapping off lead in excess to the extent of more than 1 g. or adding lead to bring the weight within the prescribed tolerance.	0.10 P. per weight.
	(ii) Drilling of small hole up to 12 mm. in diameter in weight, measure and beamscale and filling it with lead to provide a lead plug for Inspector's stamp.	0.20 P. per weight or measure or scale.
	(iii) Drilling out lead from adjusting hole of weight or drilling out lead plug from measure, scale, etc. and refilling it.	0.20 P. per weight or measure or scale.
	(iv) Filing off the surface of weight to remove the roughness due to bad casting or filing off the surface of the measure in one plane.	0.50 P. per weight or measure.

NOTE.—Fees as indicated for adjustment under Item 2 above are to be charged in addition to the prescribed fees for verification and/or re-verification and stamping of weights, measures, etc., under the Act, after adjustment.

SCHEDULE XIII.

[See Rule 23.]

FORM A.

[For Licence as Manufacturer of Weights, Measures, Weights Instruments and Measuring Instruments under the Madras Weights and Measures (Enforcement) Act, 1958.]

To

The Controller of Weights and Measures

	To be filled by the applicants.	Comments of the Inspecting Officer.
	(1)	(2)
		(3)
1	Name of the manufacturing concern for which licence is desired.	
2	Full address of the concern	
3	Date and year of establishment of workshop/factory.	
4	Names and addresses of proprietors and/or partners, and managing directors in the case of Limited Company.	
5	The date and number of registration in the case of a Registered Factory.	
6	Number and date of current Municipal Trade Licence.	
7	Nature of manufacturing activities at present.	
8	The type of articles you propose to manufacture, viz.— (i) Weights, (ii) Measures, (iii) Weighing Instruments, (iv) Measuring Instruments with details in each case.	
9	The number of persons employed in each of the above branches of production— (i) Skilled (ii) Unskilled (iii) Specialists trained in the line.	
10	The monogram or trade marks which you intend to use on articles to be manufactured by you.	
11	Details of machinery, tools, accessories, etc., owned and used by you for manufacturing weights, measures, etc.	
12	Have you a foundry/workshop on ownership or long term lease? If not, state the nature and details of arrangements made or to be made in this regard.	
13	Indicate facilities for steel casting and hardness testing of vital parts.	
14	Is electric energy available? ..	
15	Have you received any loan from Government? If so, give details.	
16	Name of bankers, if any	
17	Sales Tax Registration number ..	
18	Give details of quota allotment of raw materials for the last three years.	
19	Have you applied previously for licence? If so, with what results?	
20	When can you produce for inspection samples of your products for which licence is desired?	

To be certified by the applicants.

Certified that I/we have read the Madras Weights and Measures (Enforcement) Act, 1958/Rules, 1967, and agree to abide by the same, the administrative orders and instructions issued or to be issued thereunder.

I/We agree to deposit the scheduled licence fees with Government as soon as required to do so by the Licensing Authority.

All the information furnished above is true to the best of my/our knowledge.

To be filled in by Departmental Officers of the State Government.

Date of receipt of application

Serial number of application

Date of inspection

Recommendation of Inspecting Officer

Signature and designation of Inspecting Officer.

Place :

Date : *Signature and designation.*

Final orders of Licensing Authority.

Licence granted/refused

Licence No.

Valid till

Signature and designation.

Place :

Date :

FORM B.

[Form for licence as Repairers of Weights, Measures, Weighing Instruments and Measuring Instruments under the Madras Weights and Measures (Enforcement) Act, 1958.]

To

The Controller of Weights and Measures,

.....

To be filled in by the applicants.

Comments of the Inspecting Officer.

1 Name of the repairing concern/person seeking the licence.

2 Full address of the workshop

3 Date and year of establishment

4 Names and addresses of proprietors and/or partners, and Managing Directors in the case of Limited Company.

5 Number and date of current Municipal Trade Licence.

6 The types of articles you propose to repair under the licence.

7 Area in which you wish to operate ..

8 Extent of previous experience in the line ..

9 The number of skilled staff employed in the workshop.

10 Is electric energy available

11 Have you sufficient stock of loan/test weights, etc.? Please give details.

12 Have you previously applied for repairers licence? If so, when and with what results.

To be certified by the applicants.

To be filled in by Departmental Officers of the State Government.

Certified that I/We have read the Madras Weights and Measures (Enforcement) Act, 1958/Rules, 1967, and agree to abide by the same, the administrative orders and instructions issued or to be issued thereunder.

Date of receipt of application

Serial number of application

Date of inspection

Recommendation of Inspecting Officer

Final orders of Licensing Authority.

I/We agree to deposit the scheduled licence fees with Government as soon as required to do so by Licensing Authority.

Licence granted/refused.

All the information furnished above is true to the best of my/our knowledge.

Licence No.

Date

Valid till

Place :

Place :

Date :

Signature and designation.

Date :

Signature and designation.

FORM C.

[Form for licence as Dealer in Weights, Measures, Weighing Instruments and Measuring Instruments under the Madras Weights and Measures (Enforcement) Act, 1958.]

To

The Controller of Weights and Measures,

To be filled in by the
applicants.Comments of the
Inspecting Officer.1 Name of the establishment/shop/person
seeking the licence.

2 Full address of the establishment, etc. . .

3 Date and year of establishment

4 Names and addresses of proprietors and/or
partners, and managing directors in the
case of Limited Company.5 Number and date of current Municipal
Trade Licence.

6 Category of articles sold at present . .

7 Sales Tax Registration Number

8 Are you intending to import weights, etc.,
from places outside Madras State.

If so, indicate sources of supply from the
State/States manufacturer's trade mark/
monogram and his licence number.

9 Have you ever applied for a dealer's licence
either in this State or elsewhere? If so,
with what results.

To be certified by the applicants.

Certified that I/We have read the Madras
Weights and Measures (Enforcement) Act,
1958, Rules, 1967, and agree to abide by
the same and the Rules, the administra-
tive orders and instructions issued or to be
issued thereunder.

To be filled in by Departmental Officers of the
State Government.

Date of receipt of application.....

Serial number of application

Date of inspection

Recommendation of Inspecting Officer

.....

I/We agree to deposit the scheduled licence
fees with Government as soon as required
to do so by the Licensing Authority.

All the information furnished above is true
to the best of my/our knowledge.

Signature and Designation of
the Inspection Officer.

Place :

Signature and
Designation.

Date :

Final orders of Licencing Authority,

Licence granted/refused.

Licence No. Date

Valid till

Place :

Signature and
Designation.

Date :

SCHEDULE XIV.

(See rule 23).

Licensing Forms.

FORM A.

OFFICE OF THE CONTROLLER OF WEIGHTS AND MEASURES.

*Licence to manufacture/repair weights, measures, weighing instruments or
measuring instruments.*

Year.

Licence No.

(1) The Controller of Weights and Measures
hereby grants to (name and address of
party or parties) a licence to manufacture/
repair the following:—
(Include details of the types of weights,
measures, weighing instruments
or measuring instruments that
are licensed to be manufactured/
repaired by the party.)

(2) The licence is valid for the party named
above in respect of his workshop located
at

(3) This licence is valid from 1st January
to 31st December

(4) The manufacturer/repairer shall comply with the conditions noted below. If he fails to comply with any one of these, his licence is liable to be cancelled.

(5) The trade mark/monogram being used by the manufacturer is as under :

(6) (For repairer only) The party is licensed to repair weights, measures, weighing and measuring instruments in the areas mentioned below :—

(Signature)
Controller of Weights and Measures.

Date :

Place :

(Seal)

NOTE.—In the case of firm, its name with the names of all persons having any interest in the business should be given in paragraph 1.

Conditions of licence.

1. The person in whose favour this licence is issued shall—

(a) comply with all the relevant provisions of the Act and Rules for the time being in force ;
(b) not encourage or countenance any infringement of the provisions of the Act, or the Rules for the time being in force and shall report without delay to the Inspector any infringement that may come to his notice ;

(c) exhibit this licence in some conspicuous part of the premises to which it relates ;
(d) comply with any general or special directions that may be given by the Controller of Weights and Measures of Madras State ;

(e) surrender the licence if and when required to do so by the Controller or any other Officer employed under the Act ;

(f) present the weights, measures or weighing or measuring instruments as the case may be manufactured/repared to the Inspector for verification and stamping before sale or delivery ;

(g) render such accounts, statements relating to raw materials as may be prescribed and called for by the Controller from time to time ;

(h) submit the application for renewal of this licence, as required under the rules before sixty days of the date of expiry of the validity of the licence.

2. Every condition prescribed after the issue of this licence shall, if notified in the official gazette, be binding on the persons to whom the licence has been granted.

FORM B.

OFFICE OF THE CONTROLLER OF WEIGHTS AND MEASURES.

*Licence to a dealer in weights, measures, weighing instruments
or measuring instruments.*

Licence No.

Year.

(1) The Controller of Weights and Measures hereby grants to (Name and address of party or parties) a licence to deal in the following (Indicate details of the types of weights, measures, weighing or measuring instruments that are licensed to be dealt with by party.

(2) The licence is valid for the party named above in respect of his premises located at

(3) This licence is valid from 1st January . . .
31st December . . .

(4) The dealer shall comply with the conditions noted below. If he fails to comply with any one of these, his licence is liable to be cancelled.

(Signature)
Controller of Weights and Measures.

Date :

Place :

(Seal)

NOTE.—In the case of firm, its name with the names of all persons having any interest in the business should be given in paragraph 1.

Conditions of licence.

1. The person in whose favour this licence is issued shall—

(a) comply with all the relevant provisions of the Act and Rules for the time being in force ;
(b) not encourage or countenance any infringement of the provisions of the Act, or the Rules for the time being in force and shall report without delay to the Inspector any infringement that may come to his notice ;

(c) keep this licence exhibited in some conspicuous part of the premises to which it relates ;
(d) comply with any general or special directions that may be given by the Controller of Weights and Measures of Madras State ;

(e) surrender the licence if and when required to do so by the Controller or any other Officer employed under the Act ;

(f) submit the application for renewal of this licence, as required under the Rules before sixty days of the date of expiry of the validity of the licence.

(g) The manufacturer shall necessarily obtain a separate Dealer's licence if he wants to sell his products in retail.

2. Every condition proscribed after the issue of this licence shall, if notified in the official gazette, be binding on the person/persons to whom the licence has been granted.

SCHEDULE XV.

(See rule 23.)

Licensing and renewal fees for manufacturers, repairers or dealers of weights, measures, weighing or measuring instruments and the heads of accounts to which the amount shall be credited.

	<i>Fee for the grant of renewal of licence.</i>	<i>Security deposit.</i>	<i>The head under which the amount has to be remitted.</i>
(1)	(2)	(3)	(4)
	RS.	RS.	
Manufacturers of one item. (Weights or measures or weighing instruments or measuring instruments.)	50 00	..	L. II. Miscellaneous—f. Other fees, fines and forfeitures— Licence fee from manufac- turers of metric weights/ measures/ weighing instru- ments/measuring instru- ments
Manufacturers of more than one item. (Weights or measures or weighing instruments or measur- ing instruments.)	100 00	..	L. II. Miscellaneous—f. Other fees, fines and forfeitures— Licence fee from manufac- turers of metric weights, measures, weighing and measuring instruments.
Dealers in one item. (Weights or measures or weighing instru- ments or measuring instru- ments.)	25 00	..	L. II. Miscellaneous—f. Other fees, fines and forfeitures— Licence fee from dealers in metric weights/measures/ weighing instruments/ measuring instruments.
Dealers in more than one item. (Weights or measures or weigh- ing instruments or measuring instruments.)	50 00	..	L. II. Miscellaneous—f. Other fees, fines and forfeitures— Licence fee from dealers in metric weights, measures, weighing and measuring instruments.
Repairers of weights, measures and beam scales.	10 00	50 00	L. II. Miscellaneous—f. Other fees, fines and forfeitures— Licence fee from repairers of metric weights, measures and beam scales.
Repairers of platform weighing machines, weighbridges, etc.	25 00	100 00	L. II. Miscellaneous—f. Other fees, fines and forfeitures— Licence fee from repairers of platform weighing machines. weighbridges, etc.

SCHEDULE XVI.

(See rule 23.)

*Register of licenced manufacturers/repairers/dealers in weights/measures/
weighing instruments/measuring instruments.*

OFFICE OF THE CONTROLLER OF WEIGHTS AND MEASURES.

<i>Licence number.</i>	<i>Reference number and date in which the licence is issued.</i>	<i>Name, per- centage and residential address of the manufac- turer/repairer/ dealer.</i>	<i>Amount due.</i>	<i>Amount paid.</i>	<i>Name of the Treasury and original chalan number and date.</i>
(1)	(2)	(3)	(4)	(5)	(6)
<i>Place where workshop is situated.</i>	<i>Articles to be manufac- tured/repair- ed/sold.</i>	<i>Trade mark/ monogram being used.</i>	<i>Orders regarding cancellation of licence.</i>	<i>Result of appeal.</i>	<i>Remarks.</i>
(7)	(8)	(9)	(10)	(11)	(12)

NOTE.—(1) In the case of a firm, its name with the name of all persons having any interest in the business should be given in column (3).

(2) Column (9) does not apply to repairers and dealers.

SCHEDULE XVII.

(See rule 28.)

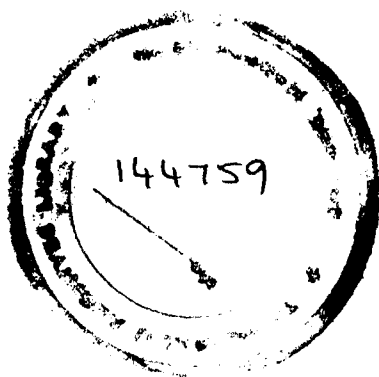
FORM OF APPEAL AGAINST AN ORDER OF AN INSPECTOR OR
ASSISTANT CONTROLLER.

1. Name and address of the appellant.
2. Number and date of order of Inspector of Weights and Measures or Assistant Controller of Weights and Measures against which the appeal is preferred.
3. Whether the appellant desires to be heard in person or through an authorised representative.
4. Grounds of appeal.

Declaration.—The particulars furnished above are true and correct to the best of my knowledge.

Signature of the appellant.

T. S. SANKARAN,
Joint Secretary to Government.



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