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Indian Standard

SPECIFICATION FOR WATER METER BOXES (DOMESTIC TYPE)

(First Revision)

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INDIAN STANDARDS INSTITUTION
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(First Revision)

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Indian Standard

SPECIFICATION FOR WATER METER BOXES (DOMESTIC TYPE)

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 27 February 1981, after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council

0.2 This standard was first issued in 1962. In this revision the minimum inside clear dimensions of water meter boxes have been increased in order to accommodate filter or dirt box which is fitted on the upstream side of the water meter. The number of sizes of water meter boxes has been reduced from three to two.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard lays down the requirements for materials, dimensions and construction of boxes for water meters of nominal sizes conforming to IS : 779-1978†.

2. SIZES AND SHAPE

2.1 Sizes — Water meter boxes shall be of two sizes, namely Size 1 and Size 2.

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

†Specification for water meters (domestic type).

2.1.1 Size 1 shall be suitable for the installation of water meters of nominal sizes 15, 20 and 25 mm and Size 2 for water meters of nominal sizes 40 and 50 mm.

2.2 Shape — The boxes shall be of oval or rectangular shape.

3. MATERIAL

3.1 Water meter boxes may be made of any suitable material, such as cast iron, mild steel or reinforced concrete.

3.1.1 *Cast Iron* — Cast iron used in the manufacture of water meter boxes shall be of quality not less than Grade FG 150 of IS : 210-1978*.

3.1.2 *Mild Steel* — Mild steel for the fabrication of water meter boxes shall conform to IS : 226-1975†.

3.1.3 *Reinforced Concrete* — Where boxes are made of reinforced concrete, materials and quality of concrete shall conform to the following requirements:

a) *Cement* — Cement shall be either ordinary or rapid-hardening Portland cement conforming to IS : 269-1976‡ and IS : 8041-1978§ respectively. Portland blast-furnace slag cement conforming to IS : 455-1976‖ may also be used, where so desired.

b) *Aggregates* — Aggregates used for the manufacture of boxes shall conform to IS : 383-1970¶.

c) *Reinforcement* — Reinforcement used shall conform to IS : 432 (Part I)-1966** and IS : 432 (Part II)-1966††.

d) *Concrete* — Concrete shall conform to the requirements given in IS : 456-1978‡‡.

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*Specification for grey iron castings (*third revision*).

†Specification for structural steel (standard quality) (*fifth revision*).

‡Specification for ordinary and low heat Portland cement (*third revision*).

§Specification for rapid hardening Portland cement (*first revision*).

‖Specification for Portland slag cement (*third revision*).

¶Specification for coarse and fine aggregates from natural sources for concrete (*second revision*).

**Specification for mild steel and medium tensile steel bars and hard-drawn steel wire for concrete reinforcement: Part I Mild steel and medium tensile steel bars (*second revision*).

††Specification for mild steel and medium tensile steel bars and hard-drawn steel wire for concrete reinforcement: Part II Hard drawn steel wire (*second revision*).

‡‡Code of practice for plain and reinforced concrete (*third revision*).

4. DIMENSIONS

4.1 General — The inside clear dimensions of boxes shall be suitable for the sizes of water meters which they have to accommodate (*see* **2.1.1**).

4.2 The minimum inside clear dimensions shall be as given in Table 1.

TABLE 1 MINIMUM INSIDE CLEAR DIMENSIONS OF WATER METER BOXES

SIZE	LENGTH mm	WIDTH mm	HEIGHT mm
1	600	600	500
2	900	600	600

5. MANUFACTURE

5.1 Construction

5.1.1 *Cast Iron Boxes* — The thickness of the cast iron box shall not be less than 8 mm for Size 1 and 10 mm for Size 2. The casting shall be free from blow holes and other defects. All sharp angles shall be removed and finished smooth. Typical illustrations of rectangular cast iron boxes are given in Fig. 1 and 2. The minimum inside clear dimensions in the case of oval shaped cast iron boxes shall be measured as indicated in Fig. 3.

5.1.2 *Mild Steel Boxes* — Thickness of plates for mild steel box shall not be less than 3 mm. All edges and corners shall be finished smooth. A typical illustration of a mild steel box is given in Fig. 4.

5.1.3 *Precast Reinforced Concrete Boxes* — The thickness of wall of reinforced concrete box shall not be less than 40 mm. All edges and corners shall be finished smooth. A typical illustration of a precast reinforced concrete box is given in Fig. 5.

5.1.4 *Slot for Pipe* — A slot in the shape of an inverted 'U' shall be provided on the short sides of the box along their centre lines for the passage of pipe. The height of the slot shall be half the clear inside height of the box (excluding the height of dome where provided), and the width shall be 40 mm for Size 1 and 75 mm for Size 2 with a tolerance of $\pm$ 3 mm.

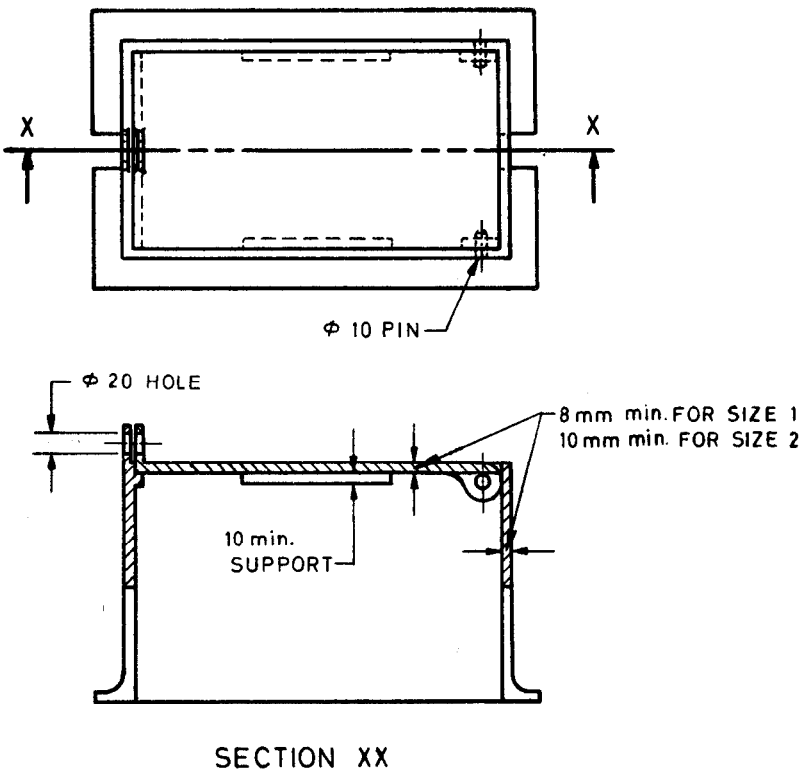


FIG. 1 TYPICAL ILLUSTRATION OF CAST IRON WATER METER BOX WITH HINGED COVER

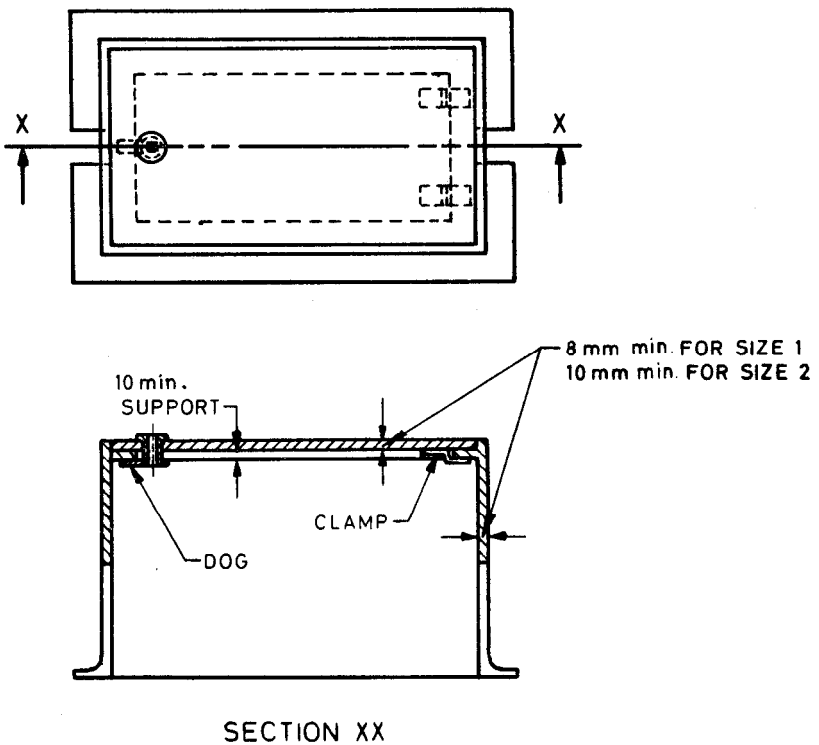


FIG. 2 TYPICAL ILLUSTRATION OF CAST IRON WATER METER BOX WITH DOG-AND-CLAMP ARRANGEMENT

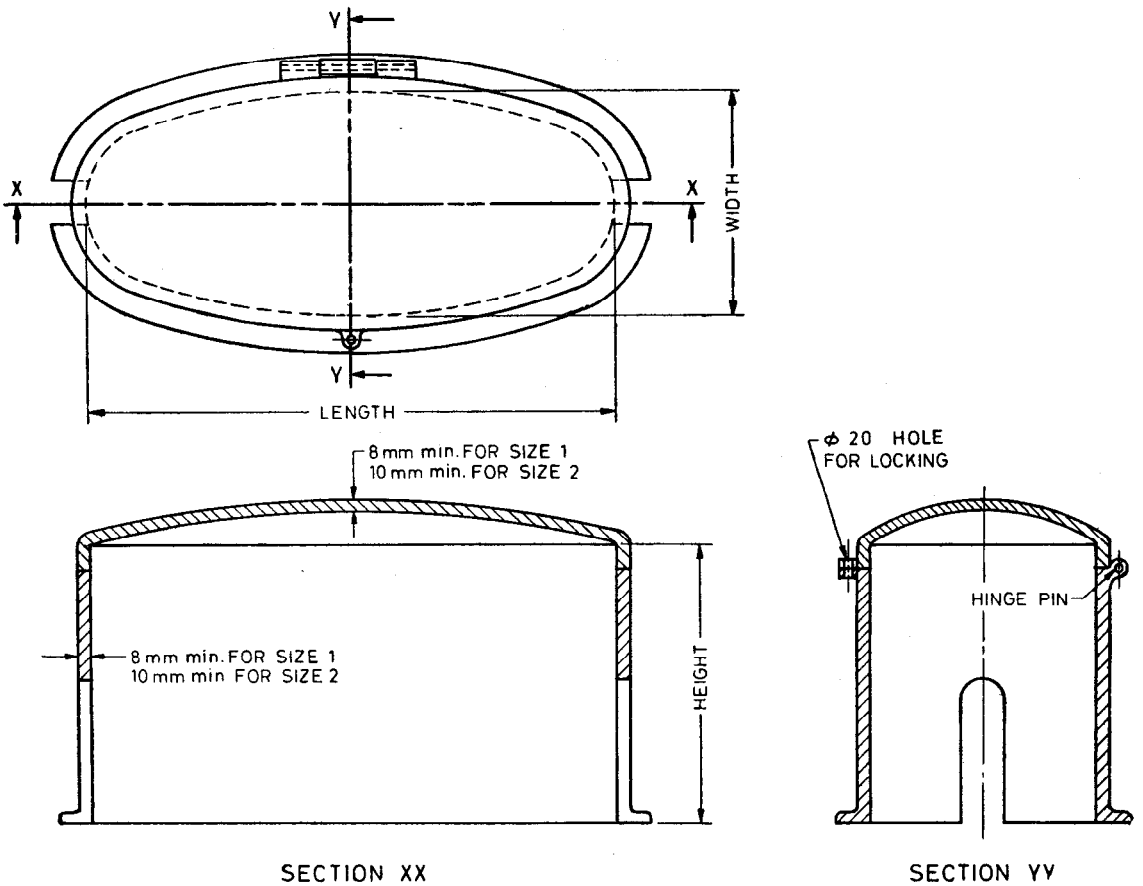


FIG. 3 TYPICAL ILLUSTRATION OF OVAL SHAPED CAST IRON WATER METER BOX

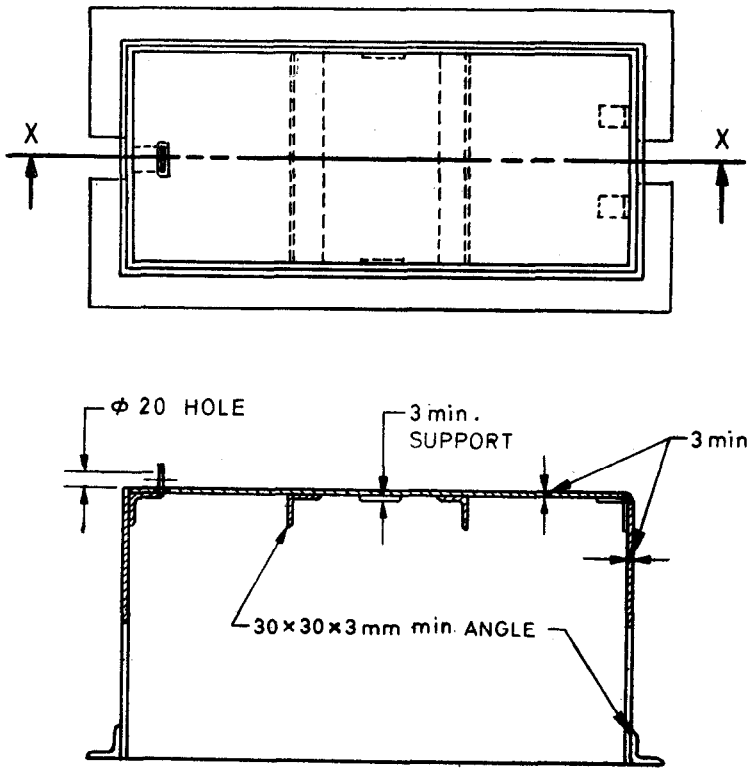
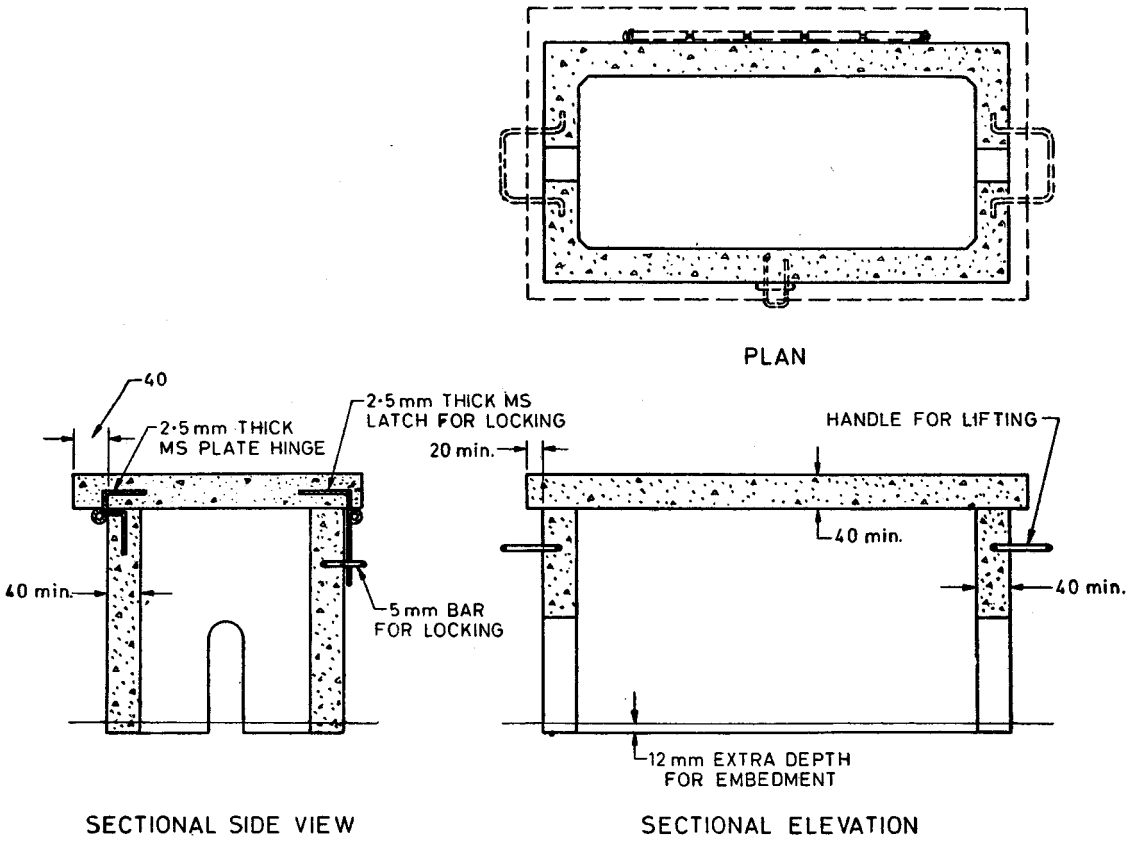


FIG. 4 TYPICAL ILLUSTRATION OF MILD STEEL WATER METER BOX



All dimensions in millimetres.

Details of wire mesh reinforcement arrangement are not shown.

FIG. 5 TYPICAL DETAILS OF REINFORCED CONCRETE WATER METER BOX

5.2 Fabrication and Fittings

5.2.1 *Locking Arrangement* — Locking arrangement may be provided either with a dog-and-clamp arrangement with the dog to operate by an ordinary sluice valve key, or, alternatively, by means of a padlock. Typical details of these arrangements are shown in Fig. 1, 2, 3, 4 and 5.

5.2.2 *Anchorage* — Suitable anchorage for fixing the box to the concrete or masonry bed plate on which the water meter would be installed shall be provided.

5.2.3 Mild steel plates shall be welded in accordance with the procedure given in IS : 823-1964*. Alternatively, they may be riveted in accordance with the relevant Indian Standards where they exist. Where no suitable standard exists, they shall be of the best quality and workmanship and shall be open to inspection by the purchaser at the manufacturer's works.

6. SAMPLING

6.1 Lot — All water meter boxes of the same size made by the same manufacturer from the same type of material shall constitute a lot.

6.2 Scale of Sampling — Each lot shall be considered individually for ascertaining its conformity to the requirements of this specification. For this purpose, a number of boxes shall be taken at random and inspected for the requirements of this specification. The number of sample boxes to be taken from a lot shall be in accordance with col 1 and 2 of Table 2.

6.3 Criteria for Conformity — The lot shall be considered to be in conformity with the requirements of the specification if the number of defectives in the sample does not exceed the acceptance number indicated in col 3 of Table 2.

7. MARKING

7.1 Each box shall be indelibly marked with the manufacturer's name or trade-mark and the size of the box.

7.1.1 Each box may also be marked with the ISI Certification Mark.

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

*Code of practice for manual metal arc welding of mild steel.

TABLE 2 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

(*Clauses* 6.2 *and* 6.3)

LOT SIZE	SAMPLE SIZE	PERMISSIBLE NUMBER OF DEFECTIVES
(1)	(2)	(3)
Up to 25	8	0
26 to 50	13	1
51 to 100	20	2
101 to 150	32	3
151 to 300	50	5
301 to 500	80	7
501 to 1 000	125	10
1 001 to 3 000	200	14
3 001 and above	315	21

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Fire safety
Flexible floor coverings
Floor finishes
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Fluid flow measuring instruments
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