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Indian Standard

SPECIFICATION FOR RECTANGULAR PRESSED STEEL TANKS

(First Revision)

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

Gr 5 *June* 1967

Indian Standard

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Indian Standard

SPECIFICATION FOR RECTANGULAR PRESSED STEEL TANKS

(First Revision)

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 March 1967, after the draft finalized by the Structural Engineering Sectional Committee had been approved by the Structural and Metals Division Council and Civil Engineering Division Council.

0.2 Pressed mild steel tanks have come into use to a large extent because of their ease in erection, facility in transport, standard construction, ease in dismantling and re-erection.

0.3 This standard was first published in 1958. In this first revision dimensions have been metricised, and brought in line with IS : 1730-1962*, reference to relevant Indian Standards for materials have been included and erection clauses have been modified suitably.

0.4 The Sectional Committee responsible for the preparation of this standard has taken into consideration the views of the manufacturers, consumers and technologists and has related this standard to the prevailing manufacturing and trade practices followed in the country in this field. Furthermore due consideration was also given to the need for international co-ordination with standards being followed in the various countries of the world. This consideration has led the Sectional Committee to derive assistance from B.S. 1564 : 1949 Pressed steel sectional tanks (rectangular), issued by the British Standards Institution.

0.5 This standard contains clauses **5.3**, **6.3.2** and **8.4** which call for agreement between pruchaser and manufacturer; clauses **7.5**, **7.9.1** and **12.1** permit the purchaser to use his option to suit his requirements; and Appendix A gives detailed information to be supplied by the purchaser to the manufacturer to facilitate manufacture and supply of steel tanks to exact requirements.

0.6 For the purpose of deciding whether a particular requirement of this code is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†.

*Dimensions for steel plates, sheet and strip for structural and general engineering purposes. [Since revised as IS : 1730 (Parts I to III)-1974.]

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

The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This specification lays down the requirements for the materials, fabrication, erection and supply of rectangular pressed steel tanks used for the storage of cold and hot water and certain other liquids under pressure not greater than the static head corresponding to the depth of the tank.

1.2 This specification does not cover the requirements of tanks storing liquids having temperature higher than 100°C, or those tanks subject to earth or other external pressures besides wind pressure.

2. TERMINOLOGY

2.0 For the purpose of this specification, the following definitions shall apply.

2.1 Cold Water or Liquid — Water or liquid at a temperature not exceeding 40°C.

2.2 Hot Water or Liquid — Water or liquid at a temperature above 40°C, but not exceeding 100°C.

3. TYPES

3.1 Pressed steel tanks are of the following three types:

Type 1 Tanks with all flanges external (*see* Fig. 1)

Type 2 Tanks with all flanges internal

Type 3 Tanks with bottom flanges internal and side flanges external

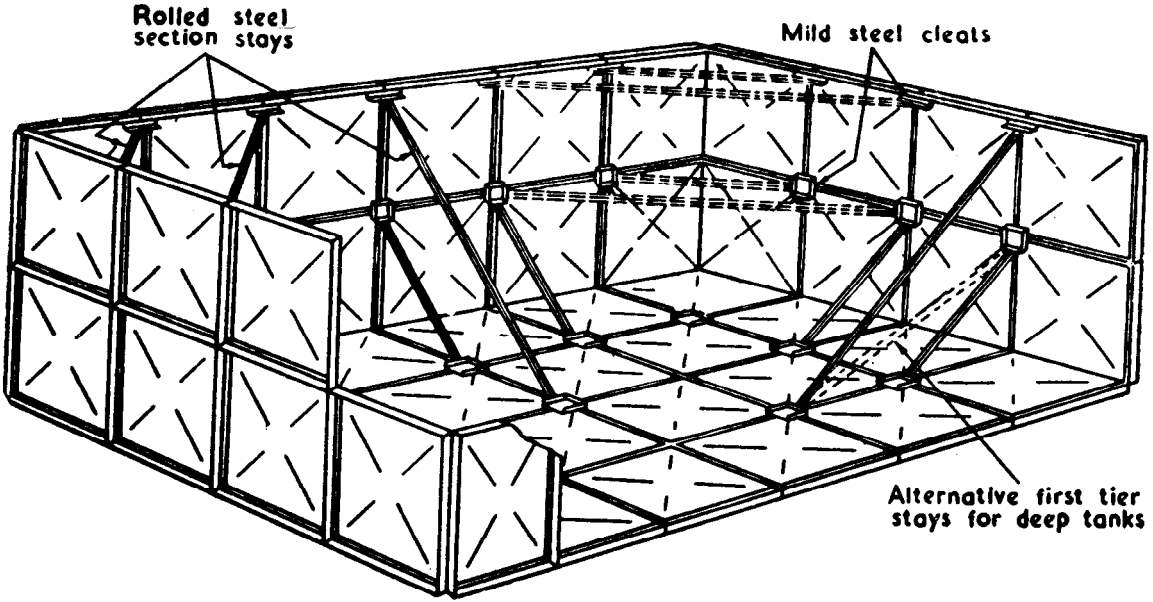
3.1.1 Each of the above types may be either with open top or with covered top.

4. GENERAL

4.1 Pressed steel tanks are not recommended for depths greater than 5 m.

4.2 Type 1 tanks are normally used where a plain internal surface is necessary or where there are no restrictions as to external access or where the exterior of the tank is to be lagged.

4.3 Type 2 tanks are normally used at a location where access to the exterior for erection is precluded due to insufficient space inside a building.



NOTE 1 — For tanks of 2·5 m and less length and breadth, the stays may be horizontal from end to end and/or side to side.

NOTE 2 — This figure is diagrammatic and illustrative only and does not purport to represent any particular design.

FIG. 1 TYPICAL PRESSED STEEL SECTIONAL RECTANGULAR TANK WITH EXTERNAL FLANGES

4.4 Type 2 and 3 tanks are suitable for use where they are to be erected on a solid level floor.

5. MATERIALS

5.1 Mild steel plates and components used in pressed steel tanks shall conform to IS : 226-1962*. Mild steel sheets used in the manufacture of pressed steel tanks shall conform to grade St 34 of IS : 1079-1963†.

5.2 Bolts and Nuts — Bolts and nuts used shall be of mild steel. They shall be hexagonal and finished black, to IS : 1363-1960‡.

5.3 Jointing Material — The material used for jointing shall be insoluble in the liquid to be stored and shall be capable of withstanding the temperature variation in the liquid to be stored in the tank (*see* **1.2**). It shall be of a suitable type depending upon the purpose for which the tank is to be used and shall be as agreed to between the purchaser and the manufacturer.

5.4 Electrodes used for welding shall conform to IS : 814-1957§.

6. DIMENSIONS

6.1 The nominal size of unit plates shall be 1·25 m square, the actual overall dimensions depending upon the particular manufacturer of the plates. The size of tanks shall be specified as multiples of the nominal dimensions of 1·25 m. The nominal capacity shall be based upon the nominal dimensions of the tank, for example, 1·25 × 1·25 × 1·25 m equals 1950 litres.

6.2 Pressed mild steel tanks shall be either 1·25 m, 2·50 m, 3·75 m or 5·00 m deep. Typical sizes, approximate weights and nominal capacity of Type 1 tanks with open tops for the depths mentioned above are given respectively in Tables 1, 2, 3 and 4.

6.3 The minimum nominal thickness of plates used for different depths of tanks used for storage of cold liquids with specific gravity not exceeding 1·0 shall be as given in Table 5.

6.3.1 In the case of hot liquids with specific gravity not exceeding 1·0, the thickness of plates for different depths of tanks shall conform to that laid down in Table 5 execpt that no plate of the tank shall be less than 6·0 mm thick.

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*Specification for structural steel (standard quality steel) (*third revision*). (Fifth revision in 1975)

†Specification for hot rolled carbon steel sheet and strip (*revised*) (Third revision in 1973

‡Specification for black hexagonal bolts (6 to 39 mm) with nuts and block hexagonal screws (6 to 24 mm). (Since revised).

§Specification for covered electrodes for metal arc welding of mild steel (*revised*). [Since revised as IS : 814 (Parts I & II)-1974].

TABLE 1 TYPICAL SIZES, APPROXIMATE WEIGHTS AND NOMINAL CAPACITIES OF TANKS WITH EXTERNAL FLANGES

(*Clause* 6.2)

Tanks 1·25 Metres Deep, Plate 5·0 mm Thick Throughout

Nominal Size Length × Breadth m × m	Plates in Tanks Number	Nominal Capacity Litres	Approximate Total Weight Empty kg	Approximate Outside Dimensions, m		
				Length	Breadth	Depth
1·25 × 1·25*	5	1 950	400	1·40	1·40	1·33
2·50 × 1·25	8	3 900	700	2·65	1·40	1·33
3·75 × 1·25	11	5 850	900	3·90	1·40	1·33
5·00 × 1·25	14	7 800	1 200	5·15	1·40	1·33
2·50 × 2·50	12	7 800	1 000	2·65	2·65	1·33
3·75 × 2·50	16	11 700	1 350	3·90	2·65	1·33
5·00 × 2·50	20	15 600	1 650	5·15	2·65	1·33
6·25 × 2·50	24	19 500	2 050	6·40	2·65	1·33
3·75 × 3·75	21	17 550	1 750	3·90	3·90	1·33
5·00 × 3·75	26	23 400	2 200	5·15	3·90	1·33
6·25 × 3·75	31	29 250	2 600	6·40	3·90	1·33
7·50 × 3·75	36	35 100	3 050	7·65	3·90	1·33
8·75 × 3·75	41	40 950	3 500	8·90	3·90	1·33
5·00 × 5·00	32	31 200	2 700	5·15	5·15	1·33
6·25 × 5·00	38	39 000	3 200	6·40	5·15	1·33
7·50 × 5·00	44	46 800	3 700	7·65	5·15	1·33
8·75 × 5·00	50	54 600	4 250	8·90	5·15	1·33
10·00 × 5·00	56	62 400	4 800	10·15	5·15	1·33
6·25 × 6·25	45	48 750	3 800	6·40	6·40	1·33
7·50 × 6·25	52	58 500	4 400	7·65	6·40	1·33
7·50 × 7·50	60	70 200	4 950	7·65	7·65	1·33
8·75 × 8·75	77	95 550	6 450	8·90	8·90	1·33

*Thickness of sheets for this tank only is 3·15 mm throughout.

NOTE — The capacity of tank with joints as in Fig. 2 will have slight reduction in capacity.

TABLE 2 TYPICAL SIZES, APPROXIMATE WEIGHTS AND NOMINAL CAPACITIES OF TANKS WITH EXTERNAL FLANGES

(*Clause* 6.2)

Tanks 2·50 Metres Deep, Plates 5·0 mm and 6·0 mm Thick

Nominal Size Length × Breadth m × m	Plates in Tanks Number	Nominal Capacity Liters	Approximate Total Weight Empty kg	Approximate Outside Dimensions, m		
				Length	Breadth	Depth
2·50 × 1·25	14	7 800	1 400	2·65	1·40	2·58
3·75 × 1·25	19	11 700	1 900	3·90	1·40	2·58
5·00 × 1·25	24	15 600	2 450	5·15	1·40	2·58
2·50 × 2·50	20	15 600	2 000	2·65	2·65	2·58
3·75 × 2·50	26	23 400	2 650	3·90	2·65	2·58
5·00 × 2·50	32	31 200	3 300	5·15	2·65	2·58
6·25 × 2·50	38	39 000	3 900	6·40	2·65	2·58
3·75 × 3·75	33	35 100	3 350	3·90	3·90	2·58
5·00 × 3·75	40	46 800	4 100	5·15	3·90	2·58
6·25 × 3·75	47	58 500	4 850	6·40	3·90	2·58
7·50 × 3·75	54	70 200	5 550	7·65	3·90	2·58
8·75 × 3·75	61	81 900	6 300	8·90	3·90	2·58
5·00 × 5·00	48	62 400	4 950	5·15	5·15	2·58
6·25 × 5·00	56	78 000	5 800	6·40	5·15	2·58
7·50 × 5·00	64	93 600	6 700	7·65	7·65	2·58
8·75 × 5·00	72	109 200	7 550	8·90	5·15	2·58
10·00 × 5·00	80	124 800	8 450	10·15	5·15	2·58
6·25 × 6·25	65	97 500	6 850	6·40	6·40	2·58
7·50 × 6·25	74	117 000	7 700	7·65	6·40	2·58
7·50 × 7·50	84	140 400	8 850	7·65	7·65	2·58
8·75 × 8·75	105	191 100	11 000	8·90	8·90	2·58

NOTE — The capacity of tank with joints as in Fig. 2 will have slight reduction in capacity.

TABLE 3 TYPICAL SIZES, APPROXIMATE WEIGHT AND NOMINAL CAPACITIES OF TANKS WITH EXTERNAL FLANGES

(*Clause* 6.2)

Tanks 3·75 Metres Deep, Plates 5·0 mm and 6·0 mm Thick

Nominal Size Length × Breadth m × m	Plates in Tank Number	Nominal Capacity Litres	Approximate Total Weight Empty kg	Approximate Outside Dimensions, m		
				Length	Breadth	Depth
3·75 × 3·75	45	52 650	5 050	3·90	3·90	3·83
5·00 × 3·75	54	70 200	6 100	5·15	3·90	3·83
5·00 × 5·00	64	93 600	7 200	5·15	5·15	3·83
6·25 × 5·00	74	117 000	8 400	6·40	5·15	3·83
6·25 × 6·25	85	146 250	9 550	6·40	6·40	3·83
7·50 × 6·25	96	175 500	10 900	7·65	6·40	3·83
7·50 × 7·50	108	210 600	12 350	7·65	7·65	3·83
8·75 × 7·50	120	245 700	13 650	8·90	7·65	3·83
8·75 × 8·75	133	286 650	15 100	8·90	8·90	3·83
8·75 × 8·75	146	327 600	16 600	10·15	8·90	3·83
11·25 × 8·75	159	368 550	18 150	11·40	8·90	3·83
10·00 × 10·00	160	374 400	18 200	10·15	10·15	3·83
11·25 × 10·00	174	421 200	20 000	11·40	10·15	3·83
12·50 × 10·00	188	468 000	21 500	12·65	10·15	3·83
11·25 × 11·25	189	473 850	21 600	11·40	11·40	3·83
12·50 × 11·25	204	526 500	23 300	12·65	11·40	3·83
12·50 × 12·50	220	585 000	25 200	12·65	12·65	3·83
13·75 × 12·50	236	643 500	27 000	13·90	12·65	3·83
13·75 × 13·75	253	707 850	29 900	13·90	13·90	3·83
15·00 × 13·75	270	772 200	30 950	15·15	13·90	3·83
15·00 × 15·00	288	842 400	33 000	15·15	15·15	3·83
16·25 × 15·00	306	912 600	35 000	16·40	15·15	3·83
16·25 × 16·25	325	988 650	37 300	16·40	16·40	3·83

NOTE — The capacity of tank with joints as in Fig. 2 will have slight reduction in capacity.

TABLE 4 TYPICAL SIZES, APPROXIMATE WEIGHTS AND NOMINAL CAPACITIES OF TANKS WITH EXTERNAL FLANGES

(*Clause* 6.2)

Tanks 5 Metres Deep, Plates 5·0 mm, 6·0 mm and 8·0 mm Thick

Nominal Size Length × Breadth m × m	Plates in Tank Number	Nominal Capacity Litres	Approximate Total Weight Empty kg	Approximate Outside Dimensions, m		
				Length	Breadth	Depth
3·75 × 3·75	57	70 200	7 100	3·90	3·90	5·08
5·00 × 3·75	68	93 600	8 850	5·15	3·90	5·08
5·00 × 5·00	80	124 800	10 250	5·15	5·15	5·08
6·25 × 5·00	92	156 000	11 800	6·40	5·15	5·08
6·25 × 6·25	105	195 000	13 550	6·40	6·40	5·08
7·50 × 6·25	118	234 000	15 300	7·65	6·40	5·08
7·50 × 7·50	132	280 800	17 200	7·65	7·65	5·08
8·75 × 7·50	146	327 600	19 050	8·90	7·65	5·08
8·75 × 8·75	161	382 200	21 000	8·90	8·90	5·08
10·00 × 8·75	176	436 800	23 150	10·15	8·90	5·08
11·25 × 8·75	191	491 400	25 100	11·40	8·90	5·08
10·00 × 10·00	192	499 200	25 300	10·15	10·15	5·08
11·25 × 10·00	208	561 600	27 400	11·40	10·15	5·08
12·50 × 10·00	224	624 000	29 600	12·65	10·15	5·08
11·25 × 11·25	225	631 800	30 000	11·40	11·40	5·08
12·50 × 11·25	242	702 000	32 100	12·65	11·40	5·08
12·50 × 12·50	260	780 000	34 500	12·65	12·65	5·08
13·75 × 12·50	278	858 000	37 000	13·90	12·65	5·08
13·75 × 13·75	297	943 800	39 600	13·90	13·90	5·08
15·00 × 13·75	316	1 029 600	42 250	15·15	13·90	5·08
15·00 × 15·00	336	1 123 200	45 000	15·15	15·15	5·08
16·25 × 15·00	356	1 216 800	47 700	16·40	15·15	5·08
16·25 × 16·25	377	1 318 200	50 700	16·40	16·40	5·08

NOTE — The capacity of tank with joints as in Fig. 2 will have slight reduction in capacity.

TABLE 5 MINIMUM NOMINAL THICKNESS OF PLATES

(*Clause* 6.3)

DEPTH OF TANK	DESCRIPTION OF PLATES WITH REGARD TO THEIR LOCATION	THICKNESS OF PLATES SHEETS
m		mm
1·25	Bottom, sides (cubic tank only)	3·15
2·50	Bottom and first tier of sides	6·0
	Top tier of sides	5·0
3·75	Bottom and first tier of sides	6·0
	Second tier of sides	6·0
	Top tier of sides	5·0
5·00	Bottom and first tier of sides	8·0
	Second and third tier of sides	6·0
	Top tier of sides	5·0

6.3.2 For cold or hot liquids with specific gravity greater than 1·0, the thickness of plates shall be as agreed to between the purchaser and the manufacturer.

7. FABRICATION

7.1 The plates shall be heated uniformly in a furnace and formed in a press, each of which shall be capable of taking the whole plate at one time. Alternatively, the plates may be pressed cold, the flanges made by V die and the corners welded provided no cracks develop. Re-drawing of plates to bring the same to the specified dimensions shall not be permitted. The flanges of the plates shall be pressed square or partly square and partly at an angle of 45° to the face of the plate or all 45° to the face of the plate (*see* Fig. 2, 3 and 4). All steel plates, bars and stays shall be carefully levelled and straightened according to the approved methods such as hammering before and after they are being punched or drilled if considered necessary by the inspector. The width of the flanges shall be suitable for the connecting bolts used. They shall have holes accurately drilled or punched in jigs so that the bolt holes are alignable and interchangeable with those of any other matching flange. The spacing of the bolt holes in the flanges shall not exceed 80 mm. For 1·25 m cubic tanks the diameter of bolts should be 12 mm excepting for the roof where it may be up to 10 mm diameter (alternatively 8 mm with the maximum spacing of 55 mm including for the roof). For other tanks the diameter of bolts should normally be 14 mm or over excepting at the roof where it may be up to 12 mm. If any other arrangement for the size of flange, diameter of the bolt and spacing of the bolt is desirable these shall be as agreed to between the purchaser and the manufacturer. Wherever necessary the flange bolts should be fitted with washers under nut.

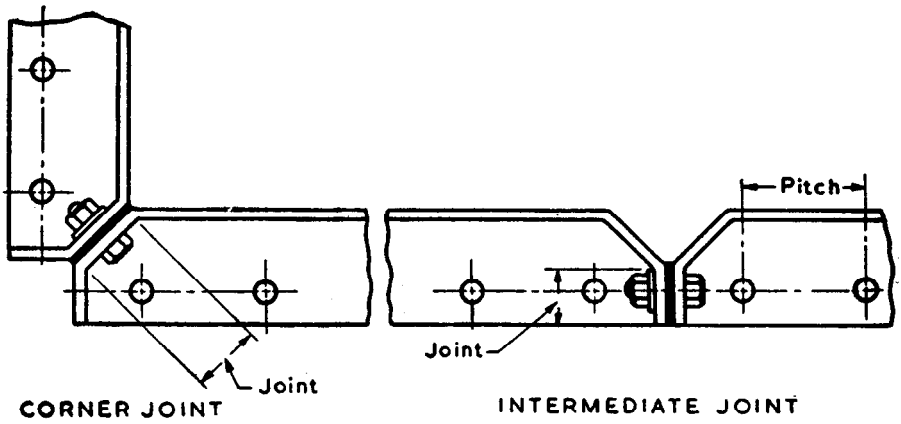

FIG. 2 FLANGE JOINTS (PARTLY SQUARED)

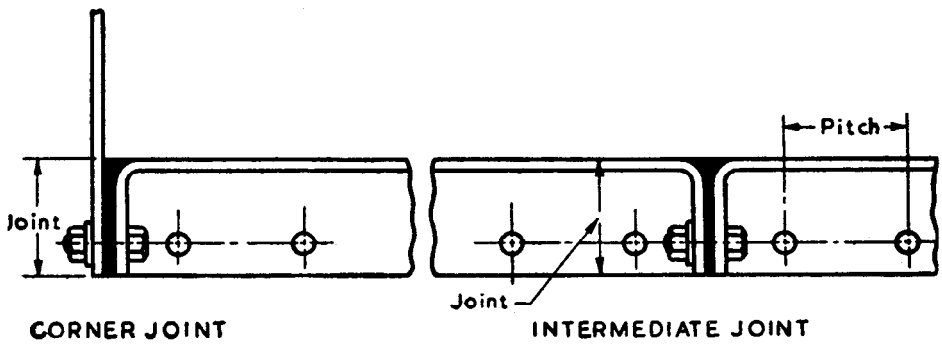

FIG. 3 FLANGE JOINTS (SQUARED)

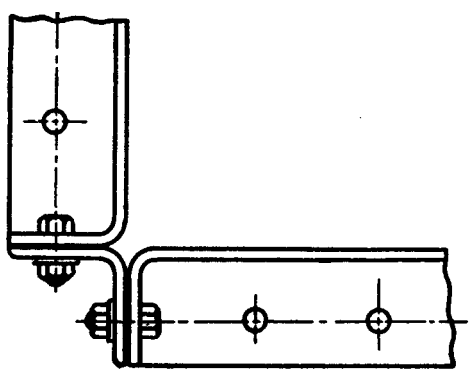

FIG. 4 CORNER DETAILS

7.2 The sides of tanks shall be supported by stays at the junction of two or more plates; the stays shall be made from mild steel rolled sections. They shall be attached to the plates by bolting to the flanges or by mild steel cleats of strength equal to that of stays bolted to the tank plates. The stays shall connect sides to bottom, and/or horizontally sides to sides generally in accordance with Fig. 1.

7.3 All outside edges of gussets shall be cut neatly and accurately and the edges ground where necessary. All burrs left by the drill and the sharp edges of all bolt holes shall be completely removed. All steel work intended to be riveted or bolted shall be completely in contact over the entire surface.

7.4 All parts of steel tanks shall be coated with paint conforming to IS : 158-1950*, and the paint shall be suitable for storage of the liquid for which the tank is intended.

7.5 Pads for connection, tapped bosses, screwed flanges or sockets, as may be required by the purchaser, shall be welded to the inside or outside or bolted to the tank plate. Pads shall be seal welded and drilled and/or tapped to suit flanges (for example *see* IS : 1536-1960†, IS : 1537-1960‡ and IS : 1538-1960§). Single pads shall be provided for connections on one side of the plate and double pads for connection on both sides of the plate. Tapped sockets shall conform to the requirements laid down in IS : 1239-1964‖. Where possible, connections shall be so positioned as to avoid the embossment of the plate (*see* Fig. 5 to 9). When double connections are to be provided in the pads the studs shall be staggered on opposite faces.

7.6 Inlet pipes and the overflow pipe, if arranged through the bottom of the tank only, shall be of bell mouth type.

7.7 Where connections are welded to the tank as well as where the corners are welded, the welding shall be done by the metal arc process in accordance with IS : 816-1956¶. The plates and connections shall be prepared with care, and fusion faces shall be reasonably free from rust, paint or other foreign matter. Where the plates are cut, edges shall be dressed smooth. Pads shall be in fair contact with the plates before the welding is resorted to. All welds should be made in the down hand position. The size of the welds shall conform to those shown in Fig. 5 to 9. The surfaces of the welds shall be even, free from cracks or blow holes. The welds shall be completely fused to the parent metal without undercut.

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*Ready mixed paint, brushing, bituminous, black, lead-free, acid, alkali, water and heat resisting, for general purposes. (Second revision in 1968).

†Specification for centrifugally cast (spun) iron pressure pipes for water, gas and sewage. (Second revision in 1976).

‡Specification for vertically cast iron pressure pipes for water, gas and sewage. (Second revision in 1976).

§Specification for cast iron fittings for pressure pipes for water, gas and sewage. (Second revision issued in 1976 and split into parts).

‖Specification for mild steel tubes and tubulars (*revised*). [Since revised as IS : 1239 (Part I)-1973 and IS : 1239 (Part II)-1974.]

¶Code of practice for use of metal arc welding for general construction in mild steel. (Since revised).

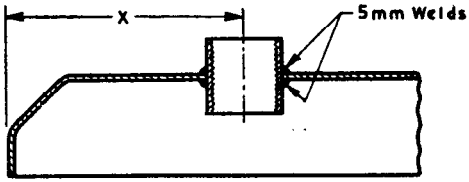

FIG. 5 TAPPED SOCKET OR BOSS WELDED INTO TANK PLATE

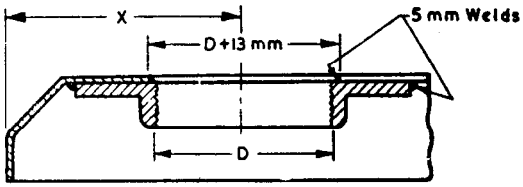

FIG. 6 SCREWED FLANGE WELDED TO TANK PLATE

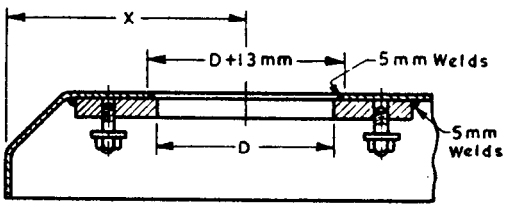

FIG. 7 SINGLE PAD WELDED TO TANK PLATE

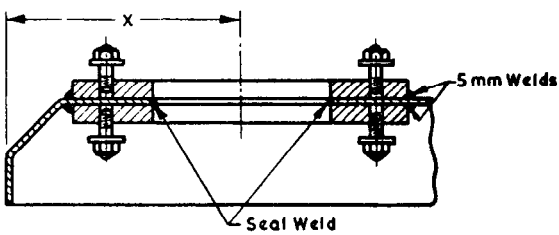

FIG. 8 DOUBLE PAD WELDED TO TANK PLATE (PADS FOR 50 mm PIPE AND UNDER, SEALING WELDS OMITTED)

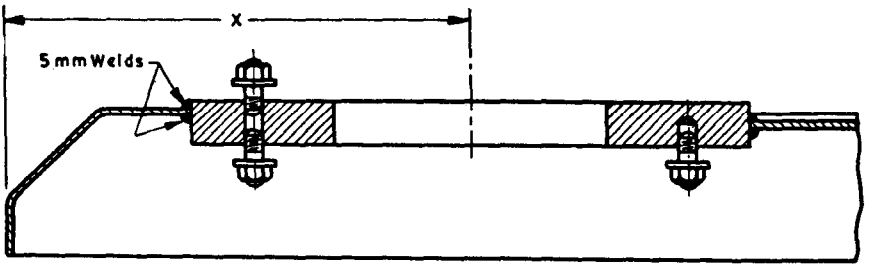

FIG. 9 THICK PAD WELDED TO TANK PLATE

7.8 Tanks 2·5 m deep or more shall be provided with a mild steel internal access ladder of minimum width of 40 cm. In the case of covered tanks, the ladder shall be adjacent to the manhole.

7.9 In the case of covered top tanks, the coverings may be of the following types:

a) Mild steel plate shall conform to IS : 226-1962* and mild steel shall conform to IS : 1079-1963†, and

b) Galvanized sheets conforming to IS : 277-1962‡ or asbestos sheets conforming to IS : 459-1962§.

NOTE 1 — Mild steel cover plates shall be 3·15 mm thick.

NOTE 2 — The design and construction of the cover shall be such that the rain water can drain off easily.

7.9.1 In all cases, covered top tanks shall be provided with a manhole of diameter not less than 450 mm if circular, or 450 × 450 mm if square, to give access to the inside of the tank. In the case of covered top tanks there shall be no opening at the junction of the top cover with the sides which will allow mosquitoes inside the tank. Vent pipes may be provided, if required by the purchaser. The vertical vent pipe, if necessary, shall be provided on top with a flanged bend, the mouth of the bend being fitted with a mosquito proof netting. Covers of tanks shall be adequately supported by rolled steel or pressed steel bearers or trusses. If the top cover acts as an effective tie, the top horizontal stays may be omitted.

*Specification for structural steel (standard quality) (*third revision*). (Fifth revision in 1975).

†Specification for hot rolled carbon steel sheet and strip (*revised*). (Third revision in 1973).

‡Specification for galvanized steel sheets (plain and corrugated) (*revised*). (Third revision in 1977).

§Specification for unreinforced corrugated asbestos cement sheets (*revised*). (Since revised).

7.10 The workmanship shall be of the highest order and the finished tanks shall be free from all defects of manufacture. Accuracy shall be observed in the design, manufacture and erection of every part of the tank. All similar parts shall be strictly interchangeable. All joints shall be leak proof and the edges of flanges finished flush with each other.

8. ERECTION

8.1 The tanks shall be erected in accordance with the detailed drawings and manufacturer's instructions.

8.2 Where tank with external flanges are to be erected at ground level, adequate working space for erection is required all round; underneath and above the finished size of the tank.

8.3 All tanks shall be effectively supported under each transverse joint and both ends of the tanks. This may be by the following:

a) Rolled steel joists forming beams and architraves mounted on dwarf pillars (*see* Fig. 10). Joists shall be designed to carry the imposed load with a maximum deflection of one part in one five-hundredth of the span.

b) Dwarf walls of brick or concrete with footings to suit the depth of tank and the nature of ground. Dwarf walls for 3·75 metres of 5·00 metres deep tanks shall have a mild steel capping plate to provide a bearing surface on the wall (*see* Fig. 11).

8.4 After erection the tank shall be finished with two coats of suitable anti-corrosive paint mutually agreed to between the manufacturer and the purchaser.

9. TESTS

9.1 Each tank shall be tested at site after erection for leakage under full static head.

10. INSPECTION

10.1 The purchaser or his representative shall have access to the works of the manufacturer at all reasonable times and shall be at liberty to inspect and to reject any material which does not conform to the requirements of this standard.

11. PACKING

11.1 All reasonable precautions to protect the components of the tanks from injury in transit shall be taken. They shall be packed in convenient bundles, riveted or bolted together or bound with iron strip or suitable wire. All rivets, bolts, nuts, etc, shall be packed in suitable containers according to trade practice.

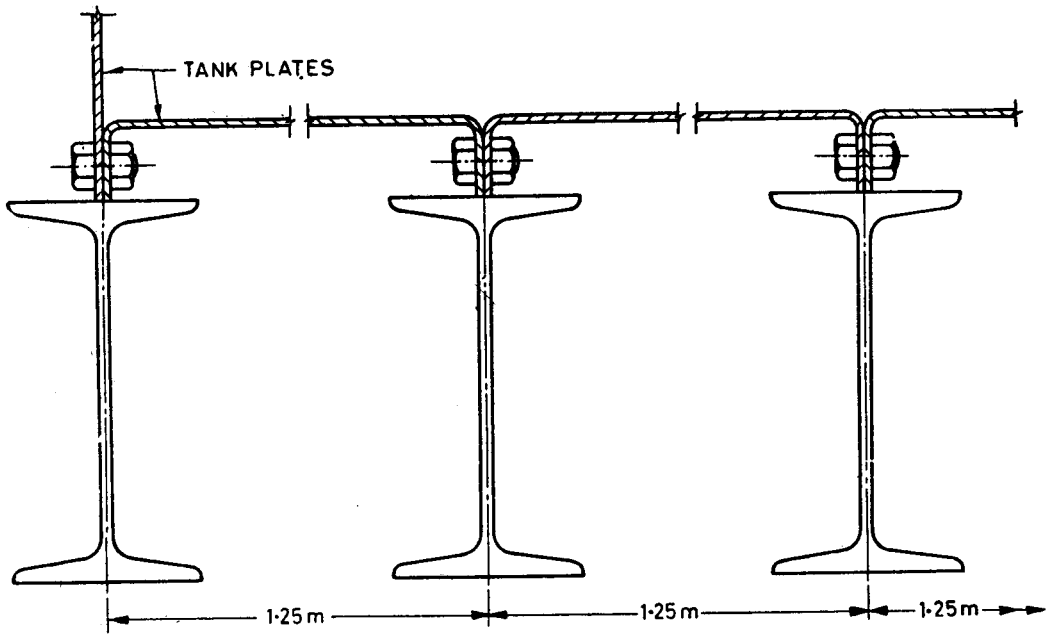

FIG. 10 ROLLED STEEL JOIST SUPPORTS FOR PRESSED STEEL TANKS

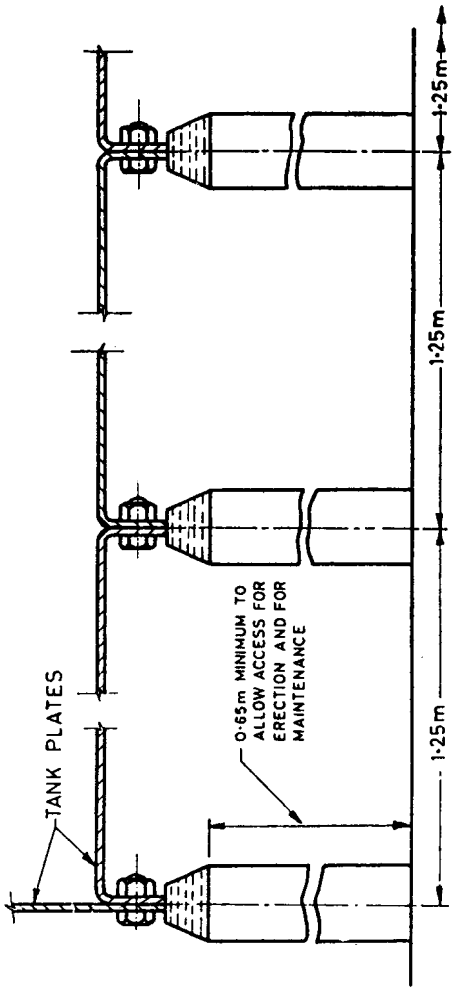

FIG. 11 DWARF WALL SUPPORTS FOR PRESSED STEEL TANKS

12. MARKING

12.1 A suitable name plate showing the name of the manufacture capacity, dimensions and other details as required by the purchaser should be attached properly so as to be prominently visible. Suitable indelible identification marks shall be made by the supplier to facilitate erection, site fabrication and erection of the tank.

12.1.1 The material may also be marked with the Standard Mark

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard 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 BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

APPENDIX A

(*Clause* 0.5)

INFORMATION TO BE SUPPLIED WITH THE ENQUIRY AND ORDER

A-1. The following details should be supplied by the purchaser at the time of enquiry and order:

a) Type of tank required, that is Type 1, Type 2 or Type 3 (*see* **3**). Type of cover (if any), number and position and type of manhole(s).

b) Capacity required in litres or dimensions in metres in multiples of 1·25 m and if any provision is to be made for future extension.

c) Limiting conditions, if any, as to space and accessibility for erection, and whether the tank will be erected inside a building or exposed to the weather. If any partition is required, particulars to be given.

d) Nature and specific gravity of liquid for which the tank is required. If corrosive, particulars to be given. If the tank is required for storage of water, the fact whether it is hard or soft, to be stated. If water level indicator is to be supplied, particulars of fixing the water level indicator to be given indicating its location.

e) Maximum temperature and boiling point of the liquid.

f) Any special requirements as to jointing material and as to internal and external coating or lagging.

g) Particulars of connections and drilling required and precise location on tank with dimensioned sketches, having regard to possible future requirements.

h) Whether external access ladders are required and, if so, particulars be given.

j) Details of any existing or proposed supporting structure and height of bottom of tank above ground level.

k) Whether transverse supporting bearers are required and, if so, particulars as to span and end support to be given.

m) Whether inspection will be made by the representative of the purchaser at the works of the manufacture.

n) Where erection and test are to be carried out by the manufacturer at site, if so, information as to site conditions and accessibility to be given by the purchaser, and whether water or liquid for testing will be made available by the purchaser to be stated.

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‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 560058	839 49 55
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53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003	54 11 37
5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001	20 10 83
E-52, Chitaranjan Marg, C-Scheme, JAIPUR 302001	37 29 25
117/418 B, Sarvodaya Nagar, KANPUR 208005	21 68 76
Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226001	23 89 23
NIT BUilding, Second Floor, Gokulpat Market, NAGPUR 440010	52 51 71
Patliputra Industrial Estate, PATNA 800013	26 23 05
Institution of Engineers (India) Building 1332 Shivaji Nagar, PUNE 411005	32 36 35
T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034	6 21 17

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*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, CALCUTTA 700072	27 10 85
†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007	309 65 28
‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square, BANGALORE 560002	222 39 71

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AMENDMENT NO. 1 OCTOBER 1997
TO
IS 804 : 1967 SPECIFICATION FOR RECTANGULAR PRESSED STEEL TANKS

(First Revision)

(*Page* 7, *Table* 1, *Note*) — Substitute the following for the existing matter:

'NOTE — The capacity of tank with joints as in Fig.2 will have proportionate reduction in capacity.'

(CED 7)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 AUGUST 1999
TO
IS 804 : 1967 SPECIFICATION FOR RECTANGULAR PRESSED STEEL TANKS

(First Revision)

[*Page* 7, *Table* 1 (*see also Amendment No.* 1)] — Substitute the following for the existing under 'Approximate Total Weight Empty, kg' against the Nominal Size:

Table 1

Nominal Size (Length × Breadth) m × m	Approximate Total Weight Empty kg
1.25 × 1.25*	250
2.50 × 1.25	650
3.75 × 1.25	850
5.00 × 1.25	1 100
2.50 × 2.50	950
3.75 × 2.50	1 250
5.00 × 2.50	1 550
6.25 × 2.50	1 850
3.75 × 3.75	1 650
5.00 × 3.75	2 000
6.25 × 3.75	2 400
7.50 × 3.75	2 800
8.75 × 3.75	3 150
5.00 × 5.00	2 500
6.25 × 5.00	2 950
7.50 × 5.00	3 400
8.75 × 5.00	3 850
10.00 × 5.00	4 350
6.25 × 6.25	3 500
7.50 × 6.25	4 000
7.50 × 7.50	4 650
8.75 × 8.75	5 950

* Thickness of sheets for this tank only is 3.15 mm throughout.

(CED 7)

Reprography Unit, BIS, New Delhi, India