भारतीय मानक **IS 1660 : 2024**

Indian Standard

पिटवाँ एवं कास्ट एल्युमीनियम के बर्तन — विशिष्टि

(दूसरा पुनरीक्षण)

Wrought and Cast Aluminium Utensils — Specification

(Second Revision)

ICS 77.150.10; 97.40.60

भारतीय मानक ब्यूरो
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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by Utensils, Cutlery and Domestic Hardware Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1982 and subsequently revised in 2009. This revision has been taken up for incorporating the modifications found necessary as a result of experience gained with the use of this standard. Also, in this revision, the standard has been brought into the latest style and format of Indian Standards, and references wherever applicable have been updated. BIS certification marking clause has also been modified to align with the revised *Bureau of Indian Standards Act*, 2016. The following major changes have been made in this revision along with incorporation of the amendment no. 1

a) Differentiation between cookware and other utensils has been added in the scope;
b) Material of construction for lid, gasket, and other components, if used has been specified;
c) Material and test requirements for lunch boxes have been specified;
d) Requirements of cast cookware have been added;
e) Requirements of various coatings have been added;
f) Induction base requirements have been added;
g) Test for glass lid has been added;
j) Dimensions of aluminium utensils as given in Table 1 have been modified; and
k) Drawing of *tadaka* pan has been added.

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

WROUGHT AND CAST ALUMINIUM UTENSILS — SPECIFICATION

(Second Revision)

1 SCOPE

1.1 This standard prescribes general requirements, material and thickness for commonly used wrought and cast aluminum utensils upto 30 litres capacity:

a) Utensils (*see* Fig. 1 to Fig. 21 and Fig. 25 and Fig. 26);
b) Thick bottom utensils (*see* Table 2);
c) Compartmental trays (*see* Fig. 22 and Fig. 23); and
d) Lunch boxes (*see* Fig. 24).

NOTES

1 The figures of the utensils included in this standard are for representation only.
2 The tests specified in this standard are common for utensils and cookware unless specified as cookware.
3 In case of utensils designated by diameter, it could be a maximum of 600 mm.

1.2 Aluminum utensils shall mean any utensils manufactured from aluminium or its alloys which can be used for cooking (*see* **1.3**), boiling, baking (external heat source, oven), serving or storing of solid/semi-solid/liquid food, water and household provisions.

1.3 Cookware

Utensil intended for use in the preparation and/or cooking of food or beverages on the top of a stove, or any other heating appliance (for illustration, *see* Fig. 2, 3, 6, 7, 11, 16, 17, 19, 20, 21, 25, and 26).

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revisions, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

3 CLASSIFICATION

3.1 Where specified, the utensil shall be classified as follows:

a) Heavy;
b) Medium; and
c) Light.

3.1.1 Thickness of sheets used in the manufacture of utensils of these classes shall not be less than as given in Table 1.

3.1.2 The minimum thickness of the sheet for those utensils which are not covered under Table 1 shall be as given below:

Sl No.	*Inner Diameter of Utensil* mm	*Minimum Sheet Thickness* mm
(1)	(2)	(3)
i)	Up to 125	0.71
ii)	Above 125 up to 350	0.90
iii)	Above 350 up to 650	1.60
iv)	Above 650 up to 910	2.20
v)	Above 910	2.95

NOTE — The above thicknesses are for light classification.

3.1.3 Thickness of thick bottom utensils shall be as given in Table 2.

4 MATERIAL

4.1 The main body of the utensil shall be fabricated from material complying to the requirements of IS 21 or IS 737. For Cast cookware, the main body shall be made from material complying to the requirements of IS 617. Other aluminum components and parts of utensils shall be manufactured from material complying with IS 21 or IS 617 or IS 734 or IS 737.

Note — The material shall not contain more than 0.05 percent as metal of any toxic metals such as lead cadmium, mercury or chromium (VI). Supplier 'certificate is acceptable.

4.1.1 The lids, if provided shall comply to the requirements of IS 21 or IS 737 stainless steel conforming to designation X04Cr19Ni9/ X07Cr18Ni9 of IS 5522/IS 6911 or stainless steel conforming to IS 15997. The minimum thickness of the stainless steel lid shall be 0.4 mm.

4.1.2 If the utensil is provided with a tempered glass lid, the lid shall conform to the performance requirements as given in **8.11**. The minimum thickness of glass shall be 3.5 mm. If the stainless steel rim is provided on the glass lid, the material of rim shall be as per IS 5522 or IS 15997 or grades of IS 5522 in IS 6911. The minimum thickness of the rim shall be 0.25 mm. In case a gasket is used, it

shall be made of food-grade silicone/nitrile (supplier certificate is acceptable).

4.2 The strips shall be manufactured from material conforming to IS 737. Stainless steel handles, rivets and fittings may also be used, which shall comply IS 6527 or IS 6911 as applicable.

4.3 The clips of lunch box shall be made of aluminium alloy wire conforming to designation 19000 of IS 739 and rivets used in lunch box shall be of aluminium or stainless steel (*see* **4.5**).

For lunch box, gaskets may be made of food grade silicone/polyethylene (supplier certificate is acceptable). The rollers may be made of polyethylene.

4.4 The screws, studs/nuts, and locking loop used for fitting handles and knobs shall be made from corrosion-resistant material such as stainless steel or brass. The brackets may be made of aluminium or stainless steel or a combination of aluminium and stainless steel.

4.5 The rivets for fixing of handles shall be made from aluminum as per designation 19000/19500 of IS 739/IS 740 or stainless steel of designation X04Cr18Ni10/X02Cr18Ni11/ X07Cr18Ni9 as per IS 6527/IS 6528. Stainless steel-capped aluminium rivets can also be used. The material of stainless steel cap shall be as per IS 5522 or grades of IS 5522 in IS 6911.

4.6 The strips used for flame guards shall be manufactured from material conforming to IS 737 or IS 1285 or stainless steel as per IS 6911.

NOTE — Only chemical composition needs to be complied with for components other than body or lid.

5 FABRICATION

5.1 The utensils shall be pressed or spun from one piece. The cookware can also be deep drawn, forged or cast. In case of cast aluminium utensils, the utensil shall be pressure die cast or sand or gravity mould cast.

5.2 In case of wrought aluminium utensils specified in **1.1(a)**, **1.2** and **1.3**; the permissible reduction in the thickness of the finished utensils, taking into account the pressing or spinning process, shall not be more than 10 percent for pressing and 15 (light and medium) and 20 percent (heavy) for spinning on the nominal sheet thickness specified as per Table 1, or **3.1.2**.

NOTE — For deep drawn, forged and cast cookware, tolerances given in **5.2** is not applicable.

5.3 The thick bottom utensils specified at **1.1(b)**, shall be of one-piece construction and shall be formed from material of thickness not less than the specified in col (3) of Table 2. Where welding is involved, it shall be done without any damage to the vessel. Spouts and handles shall be securely and suitably joined to the body and there shall be no leakage at the joints.

5.4 The compartmental trays specified at **1.1(c)**, shall be of one-piece construction. The compartments shall be well-defined and in good shape. Its corners shall be suitably rounded. The top edges of the compartments and rim of the trays shall be in one plane and the bottom shall also be in one plane. The edges of the trays shall be rounded or suitably bent over to the underside. When bent over, they shall be so pressed as not to leave any crevice. There should be no sharp edges.

5.4.1 The trays shall be finished bright all over. These may also be anodized. Anodized trays shall conform to grade AC 5 of IS 1868.

5.4.2 The pressings of the trays shall be such that they shall be cleanable thoroughly by ordinary method of cleaning by hand, brush or scrub.

5.5 Body, lid and inner pot of the lunch box specified at **1.1(d)**, shall be pressed separately. The lid shall be of push on type. Clips shall be provided to secure the lid over the body of the lunch box.

5.5.1 Lunch box shall have no sharp edges. Its construction shall be such that it is possible to clean it thoroughly and all surfaces are accessible to hand or brush.

5.5.2 The lunch box may be anodized and anodic coating shall be according to **8.3**.

6 SHAPE AND DIMENSIONS

6.1 The names of utensils of different popular shapes are given from Fig. 1 to Fig. 21, Fig. 25 and Fig. 26. These figures are only for reference purpose. The size of the utensil can be designated, namely, by diameter D, height H or capacity L, as appropriate. The size of the circle can also be designated. The range of nominal sizes and minimum sheet thickness for three classes of utensils shall be as given in Table 1.

NOTE — In case of utensils other than those covered by **6.1**, their shape and dimensions shall be as agreed to between the manufacturer and the purchaser.

6.2 The typical shapes of the compartmental trays are shown in Fig. 22 and Fig. 23. The number, shapes and dimensions of the compartments may be altered to suit the requirements of the purchaser.

6.2.1 The compartmental trays of any one type and one manufacturer shall be so made as to rest in one another so that these may be stacked in less space.

6.2.2 The dimensions of the compartmental trays shall be as given in Fig. 22 and Fig. 23. The dimensions shall have the following tolerances:

Sl No.	*Dimensions*		*Tolerance*
	Over	Up to and Including	
(1)	(2)	(3)	(4)
i)	—	50	± 1
ii)	50	100	± 2
iii)	100	200	± 3
iv)	200	—	± 5

6.2.3 The reduction in thickness of compartmental trays after draw shall not exceed 5 percent of minimum sheet thickness specified.

6.3 Typical shape of the lunch box is as shown in Fig. 24. Shapes and dimensions of the lunch box may be altered to suit the requirements of the purchaser.

6.3.1 The reduction in thickness of lunch box after pressing shall not exceed 5 percent of the minimum sheet thickness specified.

6.3.2 For thick bottom utensils, the wall thickness can go up to 33 percent reduction, however, the bottom thickness cannot exceed 5 percent of the minimum sheet thickness.

7 HANDLES

7.1 Handles, when fitted, shall be of aluminium, stainless steel or of other suitable fire-resistant material. These shall be fastened to the utensils by rivets (*see* **4.5**), by welding, by screwing to cast bosses or by riveting between flanges at the end of the handles. Handles shall be so shaped and positioned to facilitate the carrying and handling of the utensils in normal use.

7.2 Handles shall be sufficiently strong to support (in suspended position) a mass in the utensils equivalent to three times the mass of the water capacity of the utensils in the position of normal use for one minute without visible permanent deformation of the handle or utensil.

7.3 For cookware, where handles/knobs are used, the requirements shall conform to IS 13395.

8 WORKMANSHIP, FINISH AND REQUIREMENTS

8.1 The utensils shall be clean, reasonably free from distortion, dents, wrinkles, wavy surfaces, burrs, scratches, pitting and deep tool marks and other surface defects.

8.2 The design of the utensils shall be such that it is easy to clean and prevent the accumulation of dirt.

8.3 The utensils, if anodized, fully or partially, shall satisfy the requirements of IS 1868, minimum nominal thickness of anodic coating shall be grade AC 5 or above as given in Table 1 of IS 1868.

The cookware, if hard anodized, shall satisfy the finish and appearance, thickness, abrasion resistance, colour and hardness requirements as specified in IS 6057.

NOTE — Abrasion resistance in **7** of IS 6057, as per IS 5523 is a type test.

8.4 The lid of the cookware may have a vent hole/holes.

8.5 If required by the purchaser, the cookware may be supplied with non-stick unreinforced PTFE coating conforming to IS 9730. The coating should be perfluorooctanoic acid (PFOA) and bisphenol A (BPA) free (supplier certificate is acceptable).

8.6 Cookware

Inside food grade ceramic coating should comply to IS 9730. The coating shall comply with IS 9806. The coating shall be free from perfluorooctanoic acid (PFOA) and bisphenol A (BPA) (supplier certificate is only acceptable).

8.7 The cookware, if coated with powder coating or ceramic coating or high temperature resistant liquid coating, fully or partially externally, shall conform to the thickness test, adhesion test as per IS 9730. The coating shall comply with IS 9806. The minimum thickness of the coating shall be 30 microns (powder coating) and 15 micron (ceramic coating, high temperature resistant liquid coating). The externally coated cookware shall be subjected to thermal shock test as given in **8.7.1**.

8.7.1 Dry heat the cookware on gas stove to 220^{+5}_{-0} °C and then quench in water at ambient temperature. Repeat the test 25 times. There shall be no blistering of coating from the cookware during or on completion of 25 gas heat cycles.

NOTE — In case the cookware is tested as per Annex B and the external coating does not blister, cookware need not be tested as per **8.7.1**.

8.8 Requirements of PTFE, ceramic coating, powder coating, and high temperature resistant liquid coating are as follows:

The material shall not contain more than

0.05 percent as metal of any toxic metals such as lead, cadmium, mercury, or chromium (VI).

NOTE — Supplier certificate is acceptable.

8.9 If the cookware is provided with an induction friendly base, the material of the induction plate shall be as per 430 or 439 series as given in IS 6911.

For induction compatible base, the cookware shall be tested as prescribed in Annex B. It shall be conducted on a separate cookware.

NOTE — In case the external coated cookware is tested as per Annex B and the external coating does not blister, cookware passes the test as per **8.7.1**.

8.10 Tests for Lunch Boxes

8.10.1 *Performance Test*

The complete lunch box shall be tested for effective securing of the lid by snapping the clip on and off 2 000 times. After the test, no weakening or damage to the securing arrangement shall be observed.

8.10.2 *Ground Nut Oil Test for Leakage*

The inner pot shall be filled two third with ground nut oil at room temperature. The box shall then be inverted after the gasket is fixed in position over the inner pot, the lid put on and clips snapped on. No appreciable leakage of the oil from the inner pot shall occur after one minute.

8.11 Test(s) on Tempered Glass Lid

8.11.1 *Fragmentation Test*

8.11.1.1 One lid from each lot having the same thickness is to be tested for this purpose. The sample lid shall be supported on a level surface (vitrified tile or smooth concrete surface). Paste a 50 mm × 50 mm transparent tape inside the glass lid, where the glass would be impacted. The glass lid shall be broken by means of a center punch of 0.20 mm ± 0.05 mm in radius of curvature at its tip by giving one severe blow to cause fracture. The point can be center point between the outer edge and the center, (away from a hole, if provided).

8.11.1.2 The particle count determination shall be completed within 3 minutes of the fracture of that glass. No magnifying lens or other aid to vision need be used when making the particle count. The broken particle in a square of side 50 mm shall be counted. There shall be not less than 60 particles in a square of side 50 mm (50 mm × 50 mm).

8.11.2 *Ball Drop Test*

8.11.2.1 One lid from each lot having the same thickness is to be tested for this purpose. The specimen shall be supported on a level surface (vitrified tile or smooth concrete surface). Mark three points 120 degree apart, the point can be center point between the outer edge and the center (away from a hole, if provided).

8.11.2.2 The smooth surface steel ball of 225 g ± 5 g is placed at a height of 1 000 mm from the surface (can be inside a plastic tube with a sliding stopper), allow the ball to free fall on the three points. No crack shall be seen by the naked eye under normal light.

8.11.3 *Thermal Shock Test*

8.11.3.1 This test is applicable for glass lids used for cooking utensils. For others this test is optional.

8.11.3.2 One lid from each lot having the same thickness is to be tested for this purpose. Place the glass in an air circulating oven at 120 °C ± 5 °C. Soak for the cited temperature for 30 min. Remove the glass, pour one liter of water at ambient temperature on the lid. The lid shall not shatter.

8.11.4 *Free Fall Test*

8.11.4.1 *Glass lid with rim*

Drop the lid with rim facing down, from a height of 900 mm on a vitrified tile surface or a level smooth concrete surface. The glass shall not break/crack.

8.11.4.2 *Glass lid without rim*

Drop the lid without rim facing down, from a height of 900 mm on a vitrified tile surface or a level concrete surface. The glass shall not break/crack.

8.12 In case of cast utensils (*see* **5.1**), the utensils shall be visually inspected with naked eyes or corrected vision for surface defects like, burrs, cracks, blow holes, blisters, chip off, short fills. There shall be no defects. Supplier certificate is acceptable in case of cast utensil (*see* **5.1**), conformity certificate about the process of manufacture is acceptable

8.13 In case of forged utensils, the utensils shall be visually inspected with naked eyes or corrected vision for surface defects like, cold shut, unfilled section, pits, cracks, sharp edges, die shift, flakes. Supplier certificate is acceptable in case of forged utensil (*see* **5.1**), conformity certificate about the process of manufacture is acceptable.

9 NOMINAL CAPACITY

9.1 The nominal capacity of the utensil (where applicable) shall be expressed only in complete or 10 ml units for utensils less than 1 litre capacity and 50 ml units for utensils above 1 litre capacity. No

negative tolerances shall be allowed on the nominal capacity.

For example, capacity of 3.94 litre, the nominal capacity to be marked shall be 3.90 litre or less.

9.2 In case the marking or labelling is in terms of diameter, the internal diameter of the utensil shall be marked (except for *tawa*, where the diameter is outer diameter). The dimensions shall be exclusive of the handles. The diameter shall be expressed only in complete or 0.1 cm units. No negative tolerances shall be allowed on the diameter.

NOTE — If the diameter is 39.25 cm, its diameter shall be marked as the nearest lower complete of 0.1 cm units, the diameter to be marked as 39.2 cm or less (39.1 cm, 39 cm).

10 INSTRUCTIONS FOR USE

The manufacturer shall provide full instructions for use and cleaning for coated or hard anodized utensils.

11 MARKING

11.1 Each utensil (body) shall be legibly and indelibly marked with the following details:

a) Category or type of utensil;
b) Capacity in litre/mililitre or size in cm/ mm of utensil;
c) Thickness or class;
d) Manufacturer name or initials or trade-mark; and
e) Batch number or month of manufacture (MMYYYY).

NOTES

1 The material grade of the body and/or lid shall be marked on packaging. The marking of grades can also be in the form of sticker/leaflet.

2 The material grade of the body and/or lid may be marked on the product.

11.2 BIS Certification Marking

The product may also be marked with Standard Mark.

11.2.1 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

12 PACKING

The utensils shall be packed in accordance with the best trade practice or as agreed to between the purchaser and the supplier.

13 SAMPLING AND CRITERIA FOR CONFORMITY

It shall be done in accordance with IS 9040.

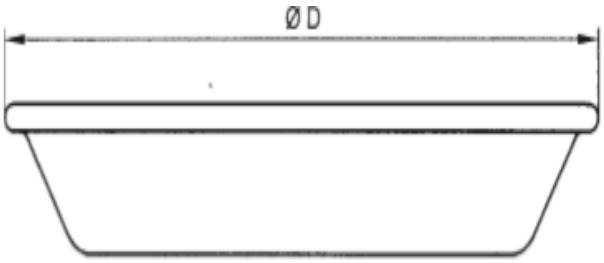


FIG. 1 *PARAT*

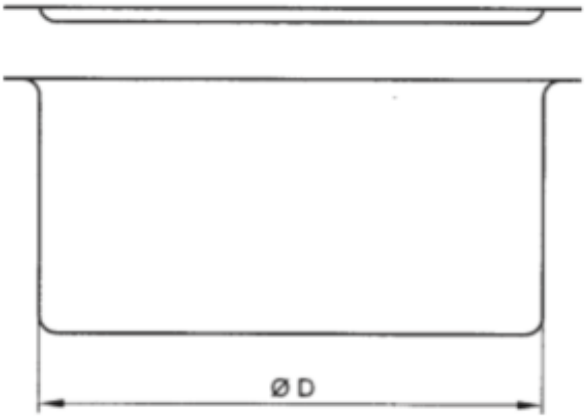


FIG. 2 DEGGCHI/TOPE WITH LID (COOKING POT)

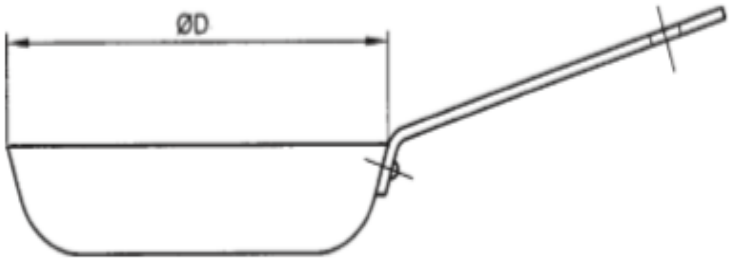


FIG. 3 FRYING PAN

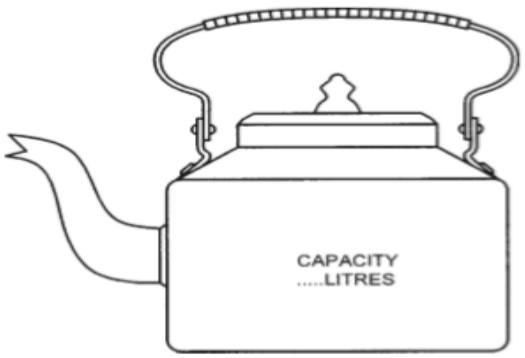


FIG. 4 KETTLE WITH LID

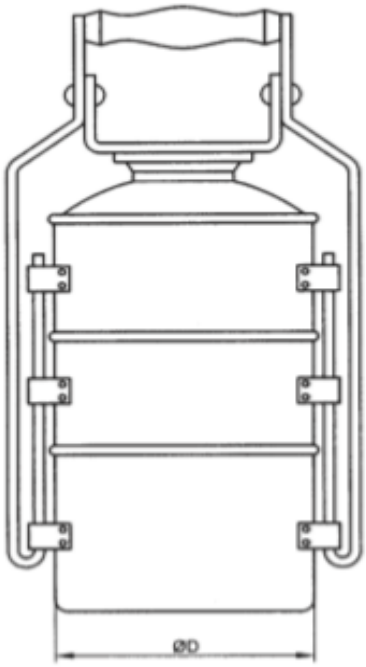


FIG. 5 TIFFIN CARRIER

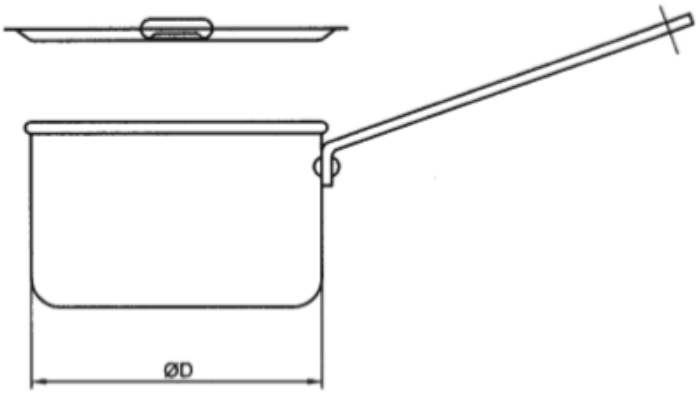


FIG. 6 SAUCE PAN WITH LID

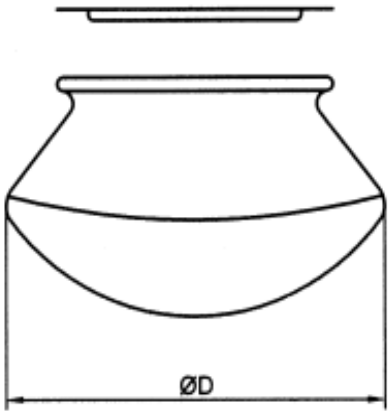


FIG. 7 *HANDI* WITH LID

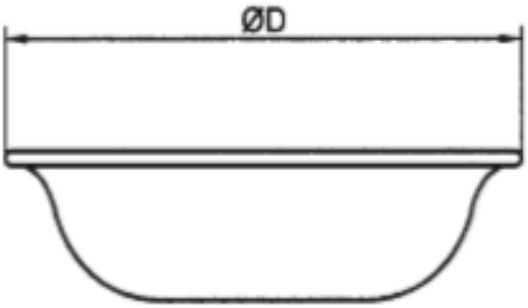


FIG. 8 BASIN

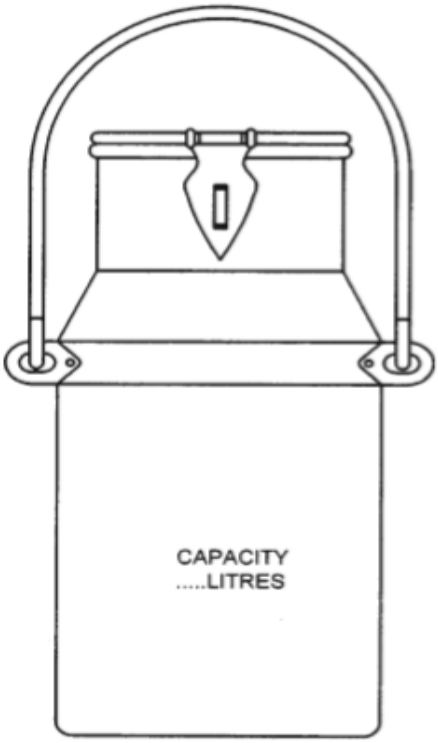


FIG. 9 MILK CAN WITH BALL HANDLE AND HINGED LID

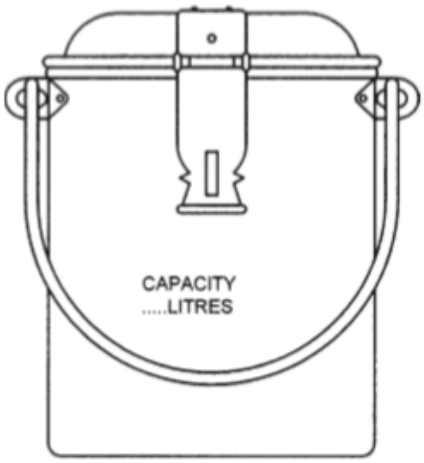


FIG. 10 MILK BUCKET WITH BALL HANDLE AND HINGED LID

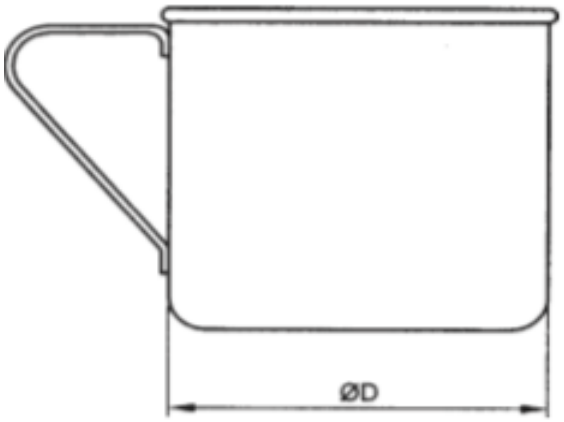


FIG. 11 MUG

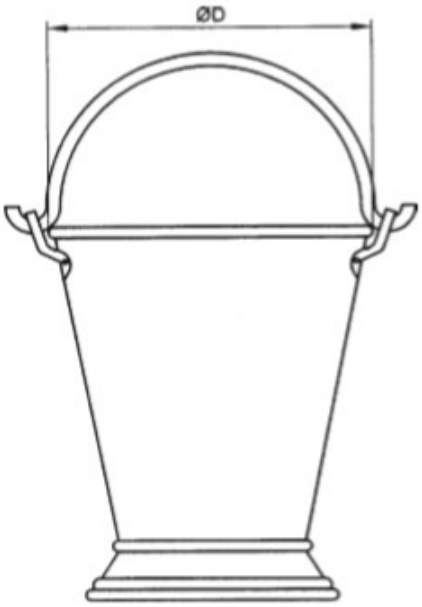


FIG. 12 BUCKET WITH STAND

FIG. 13 SCREW BARNI WITH LID

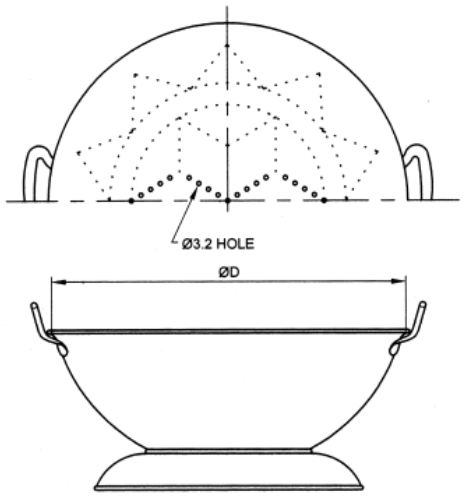


FIG. 14 COOKERY COLANDER

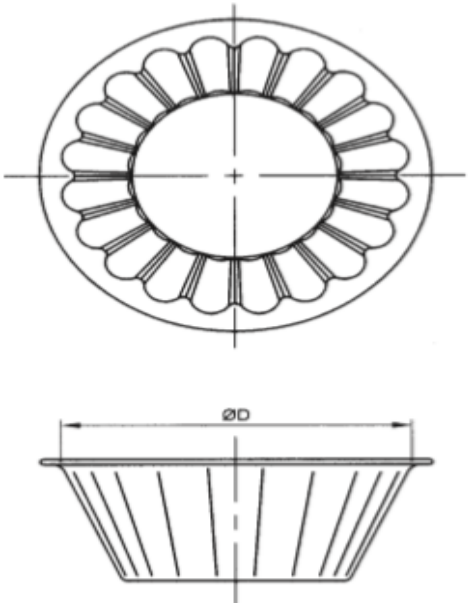


FIG. 15 PANS, PATTY (JELLY MOULD) FOR BAKING AND TRAYS

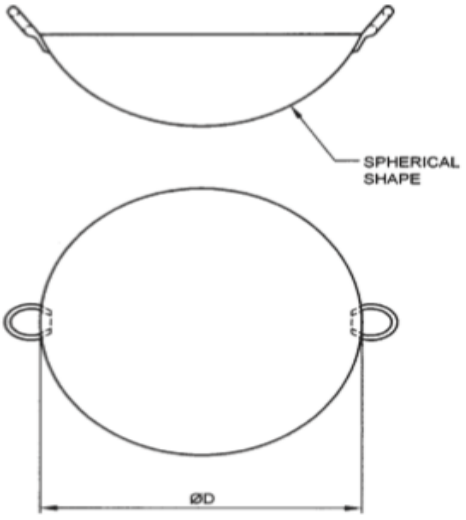
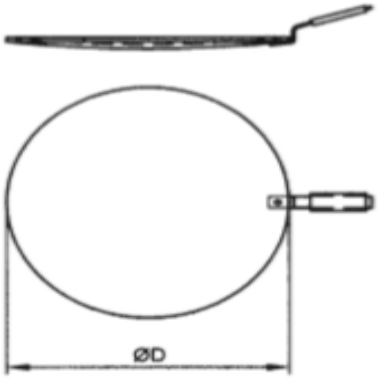
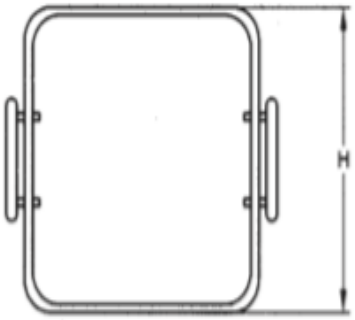


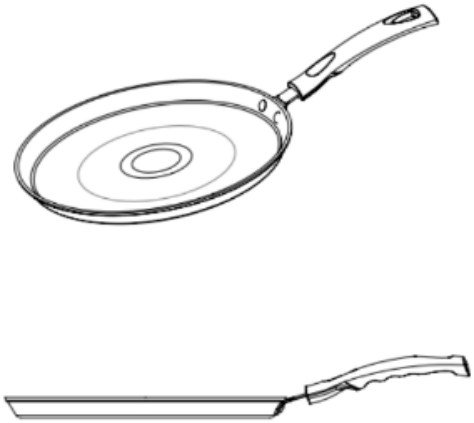
FIG. *16 KARAHI/KADAI/APPACHATTI*



17A *TAWA* ROUND



17B *TAWA* SQUARE



17C *TAVA* FLAT

FIG. 17 *TAWA*

FIG. 18 TUB

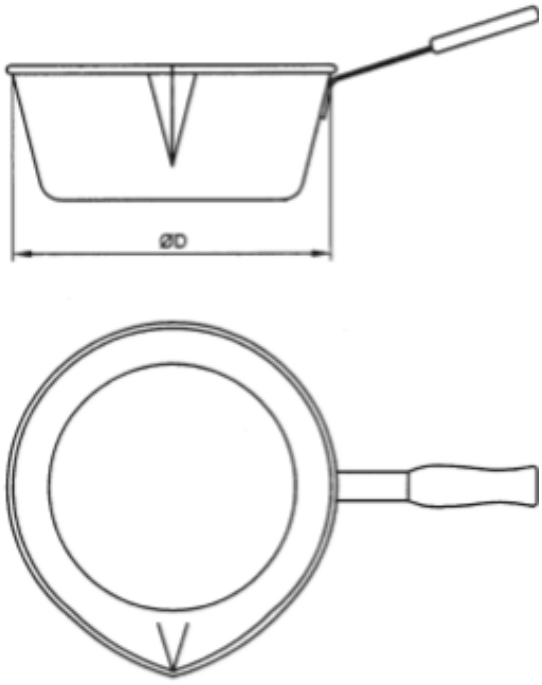


FIG. 19 MIX PAN

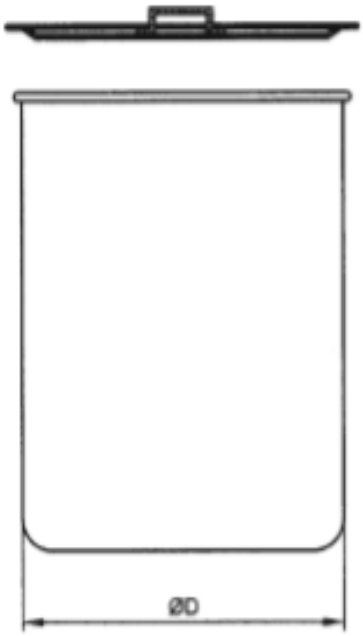


FIG. 20 STOCK POTS WITH LID

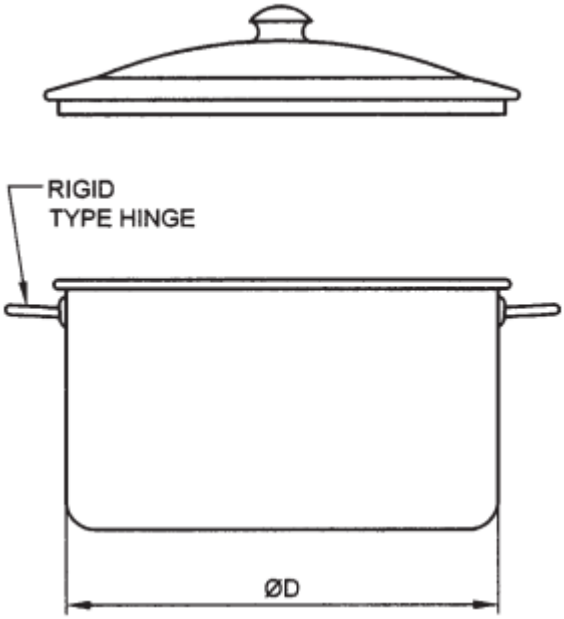
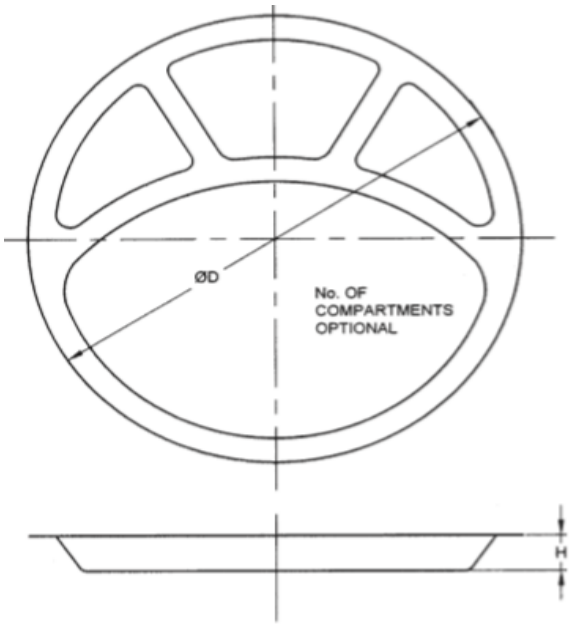


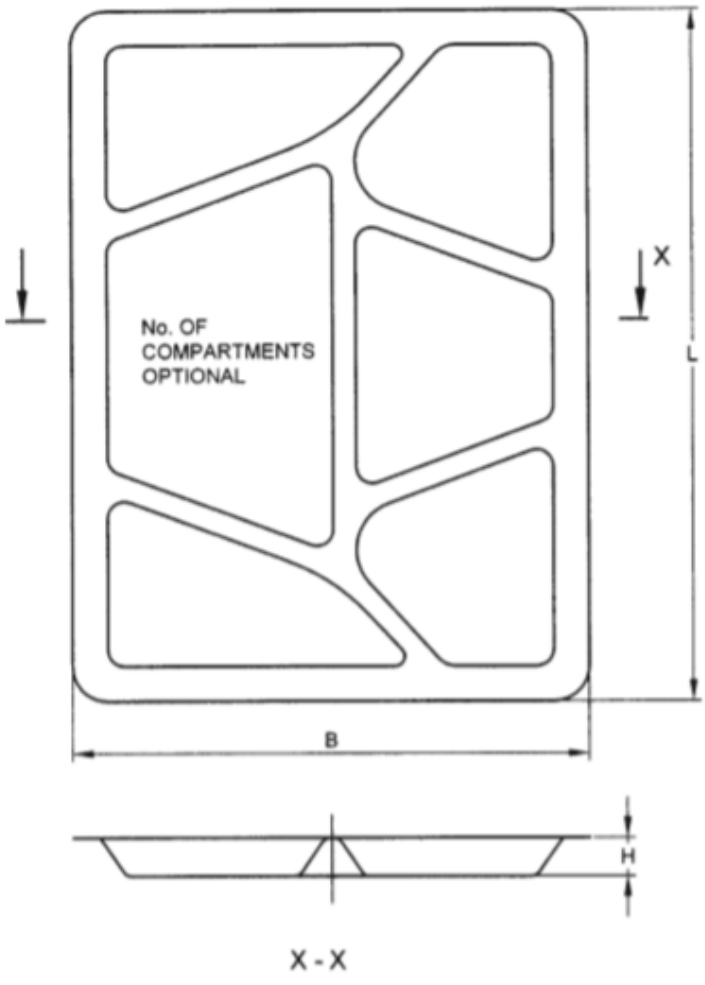
FIG. 21 CASSEROLE WITH LID



Diameter *D*	*Height* *H*
350	30
375	30

All dimension in millimeters.

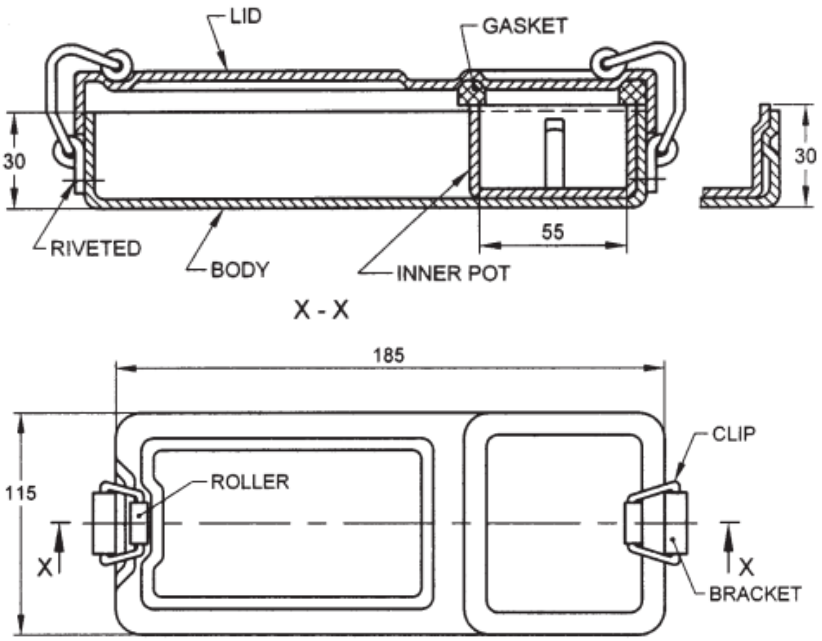
FIG. 22 COMPARTMENTAL TRAY, ROUND



Length	*Breadth*	*Height*
L	*B*	*H*
300	200	20
400	300	30

All dimension in millimeters.

FIG. 23 COMPARTMENTAL TRAY, RECTANGULAR



All dimension in millimeters.

FIG. 24 LUNCH BOX ALUMINIUM WITH LID

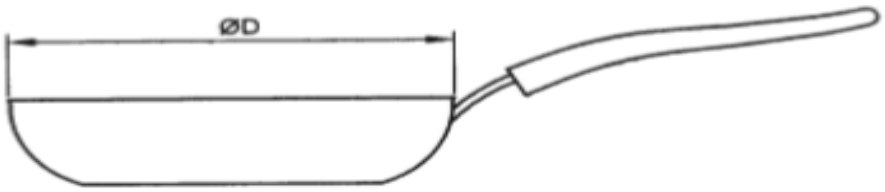


FIG. 25 WOK

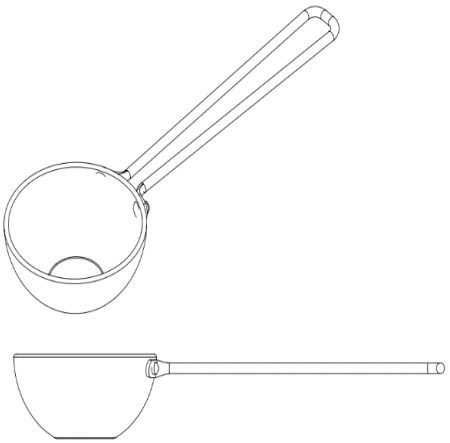


FIG. 26 *TADKA* PAN

Table 1 Dimensions of Aluminium Utensils

(*Foreword*, *Clauses* 3.1.1, 3.1.2, 5.2, *and* 6.1)

Sl No.	Article	Ref to Fig. No.	Range of Nominal Sizes			Minimum Thickness of Sheet mm					
			Dia, *D* mm	Height, *H* (Inside) mm	Capacity (Litre)	Heavy		Medium		Light	
						Vessel	Lid	Vessel	Lid	Vessel	Lid
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	*Parat*	1	100 to 250	—	—	—	—	1.22	—	0.90	—
			Above 250 to 350	—	—	—	—	1.60	—	1.22	—
			Above 350 to 625	—	—	—	—	2.00	—	1.60	—
			Above 625 to 875	—	—	—	—	2.64	—	—	—
			Above 875 to 1250	—	—	—	—	3.25	—	—	—
ii)	*Degchi*/Tope with lid (cooking pot)	2	75 to 250	—	—	—	—	1.22	0.90	0.90	0.71
			Above 250 to 325	—	—	2.00	1.60	1.60	1.22	0.90	0.71
			Above 325 to 550	—	—	3.25	1.60	2.00	1.22	1.22	0.90
			Above 550 to 750	—	—	3.25	1.60	2.60	1.60	2.00	0.90
			Above 750 to 910	—	—	4.00	2.00	3.25	1.60	2.64	1.00
			Above 910	—	—	4.00	2.00	3.25	1.60	2.64	1.20
iii)	Fry pan	3	140 to 225	—	—	2.50	—	1.60	—	1.20	—
			Above 225 to 355	—	—	3.00	—	2.50	—	1.60	—
			Above 355	—	—	4.00	—	3.25	—	2.60	—
iv)	Kettle with lid	4	—	—	0.5 to 2.0	—	—	1.22	0.90	0.90	0.71
			—	—	2.0 to 7.0	2.64	1.22	1.60	0.90	1.22	0.71
v)	Tiffin-carrier	5	100 to 180	—	—	—	—	1.22	—	0.90	—
vi)	Sauce pan/sauté pan (where height is less)	6	120 to 305	—	—	2.00	0.90	1.22	0.90	0.90	0.70
vii)	*Handi* with lid	7	140 to 320	—	—	2.00	0.90	1.60	0.90	1.22	0.90
			Above 320 to 560	—	—	2.50	1.22	2.00	1.22	1.60	1.22
viii)	Basin	8	85 to 310	—	—	—	—	1.25	—	0.90	—
			Above 310 to 510	—	—	—	—	1.60	—	1.25	—
ix)	Milk can with bail handle and hinged led	9	—	—	0.50 to 2.50	—	—	1.25	1.25	0.90	0.90
			—	—	Above 2.50 to 6.00	—	—	1.60	1.60	1.25	1.25
x)	Milk bucket with ball-	10	—	—	Above 3.00 to 7.00	—	—	1.25	1.25	0.90	0.90

Table 1 (*Concluded*)

Sl No.	Article	Ref to Fig. No.	Range of Nominal Sizes			Minimum Thickness of Sheet mm					
			Dia, *D* (Inside) mm	Height, *H* (Inside) mm	Capacity (Litre)	Heavy		Medium		Light	
						Vessel	Lid	Vessel	Lid	Vessel	Lid
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	handle and hinged lid		—	—	Above 7.00 to 14.00	—	—	1.60	1.60	1.25	1.25
			—	—	Above 14.0 to 20.00	—	—	2.00	2.00	1.60	1.60
xi)	Mug	11	75 to 155	—	—	—	—	1.00	—	0.90	—
xii)	Bucket with stand	12	230 to 255	—	—	—	—	0.90	—	—	—
			Above 255 to 305	—	—	—	—	0.90	—	—	—
			Above 305	—	—	—	—	1.25	—	—	—
xiii)	Screw barni with lid	13	125 to 150	—	—	—	—	0.90	0.71	—	—
xiv)	Cookery colanders	14	125 to 460	—	—	—	—	1.25	—	—	—
			Above 460 to 610	—	—	—	—	1.60	—	—	—
xv)	Pans (patty and jelly mould) for baking and trays	15	65 to 150	—	—	2.00	—	1.20	—	0.90	—
xvi)	*Karahi/Kadai /Appachatti*	16	150 to 350	—	—	3.00	—	2.00	—	1.20	—
			Above 350 to 510	—	—	4.00	—	2.50	—	1.60	—
xvii)	*Tawa* round	17A	150 to 310	—	—	3.00	—	2.00	—	1.20	—
			Above 310 to 510	—	—	4.00	—	2.50	—	1.60	—
	Tawa square/rectangular	17B	150 to 310	—	—	3.00	—	2.00	—	1.20	—
			Above 310 to 510	—	—	4.00	—	2.50	—	1.60	—
xviii)	Tub	18	380 to 715	—	—	3.25	—	2.00	—	1.20	—
xix)	Milk pan	19	120 to 305	—	—	3.00	—	2.00	—	1.20	—
xx)	Stock pots with lid	20	160 to 300	—	—	3.00	1.60	2.00	1.20	1.20	0.90
			Above 300	—	—	4.00	2.00	3.00	1.60	2.00	1.20
xxi)	Casserole with lid	21	120 to 360	—	—	2.50	1.20	2.00	0.90	1.20	0.70
			Above 360	—	—	3.00	1.60	2.50	1.2	1.60	0.90
xxii)	Compartmental tray round	22	300 to 400	30	—			1.60	0.90	1.25	0.71
xxiii)	Compartmental tray rectangular	23	—	20	—			1.60	0.90	1.25	0.71
			—	30	—						
xxiv)	Lunch box	24	—	30	—	—		1.60	0.90	1.25	0.71
xxv)	Wok	25	150 to 310	30	—	2.7	—	2.00	—	1.22	—
			Above 320 to 560	—	—	3.00	—	2.50	—	1.60	—

NOTES

1 For checking the reduction in thickness, measurements shall be made at the thinnest place, but excluding flanges or sharp corners.

2 Lid dimensions given in the table is for lids made of aluminum. Refer 4.1.2 for details of lid.

3 *Tawa* can be rectangular also in addition to round and square.

4 *Tadaka* pan dimensions is as agreed to between the purchaser and supplier.

Table 2 Thickness of Thick Bottom Aluminium Utensils

(*Clause* 1.1, 3.1.3 *and* 5.3)

Sl No.	Dia of Pot	Minimum Thickness at the Bottom	Minimium Thickness of Wall at the Top Edge	Minimum Cover Thickness
	mm	mm	mm	mm
(1)	(2)	(3)	(4)	(5)
i)	Up to 250	3.0	2.0	1.2
ii)	251 to 400	4.0	3.0	1.6
iii)	Above 400	5.0	3.5	2.0

ANNEX A

(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 21 : 1992	Wrought aluminium and aluminium alloys for manufacture of utensils — Specification (*fourth revision*)
IS 101 (Part 2/Sec 2) : 1986	Methods of sampling and test for paints, varnishes and related products: Part 2 Test on liquid paints (chemical examination), Sec 2 Volatile matter (*third revision*)
IS 617 : 1994	Cast aluminium and its alloys — Ingots and castings for general engineering purposes — Specification (*third revision*)
IS 734 : 1975	Specification for wrought aluminium and aluminium alloy forging stock and forgings (for general engineering purposes) (*second revision*)
IS 737 : 2008	Wrought aluminium and aluminium alloy sheet and strip for general engineering purposes — Specification (*fourth revision*)
IS 739 : 1992	Wrought aluminium and aluminium alloys — Wire for general engineering purposes —Specification (*third revision*)
IS 740 : 1977	Specification for wrought aluminium and aluminium alloy rivet stock for general engineering purposes (*second revision*)
IS 1868 : 1996	Anodic coatings on aluminium and its alloys — Specification (*third revision*)
IS 5522 : 2014	Stainless steel sheets and strips for utensils — Specification (*third revision*)
IS 5523 : 1983	Method of testing anodic coating on aluminium and its alloys (*first revision*)
IS 6057 : 1988	Specification for hard anodic coatings on aluminium and aluminium alloys (*first revision*)
IS 6527 : 1995	Stainless steel wire rods — Specification (*first revision*)
IS 6528 : 1995	Stainless steel wire — Specification (*first revision*)
IS 6911 : 2017	Stainless steel plate, sheet and strip — Specification (*second revision*)
IS 9040 : 1978	Method for sampling of utensils
IS 9730 : 2008	Non–stick unreinforced plastics coatings on domestic cooking utensils — Specification (*first revision*)
IS 9806 : 2001	Methods of test for and permissible limits of toxic materials released from ceramicware, vitreous enamelware, glassware and glass — Ceramicware in contact with food (*first revision*)
IS 13395 : 2021	Performance of handles and handle assemblies attached to cookware — Specification (*first revision*)
IS 15997 : 2012	Low nickel austenitic stainless steel sheet and strip for utensils and kitchen appliances — Specification

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ANNEX B

(*Clause* 8.7.1 *and* 8.9)

TEST FOR INDUCTION BOTTOM

B-1 Dry heat the cookware body on induction cook top to 250^{+25}_{-0} ºC and then quench in water at ambient temperature. Repeat the test 25 times.

B-2 Dry heat the same cookware body used in **B-1** on gas stove to 250^{+25}_{-0} ºC and then quench in water at ambient temperature. Repeat the test 25 times.

The induction steel base shall not peel off or separate from the aluminum cookware bottom during or on completion of a total of 50 heat cycles (25 cycles of gas heat and 25 cycles of induction heat).

NOTE — Temperature to be measured at inside bottom of the cookware body.

ANNEX C

(*Foreword*)

COMMITTEE COMPOSITION

Utensils, Cutlery Domestic Hardware Sectional Committee, MED 33

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