

**BUREAU OF INDIAN STANDARDS**

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*भारतीय मानक मसौदा*

**घरेलू स्टेनलेस स्टील के बर्तन — विशिष्टि**

*( आईएस 14756 का तीसरा संशोधन )*

*Draft Indian Standard*

**Domestic Stainless Steel Utensils — Specification**

*( Third Revision of IS 14756 )*

ICS 77.140.20: 97.040

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Utensils, Cutlery, and Domestic Hardware  
Sectional Committee, MED 33

Last date for receipt of comments  
Is 01 June 2024.

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**FOREWORD**

*(Formal clause will be added later)*

This standard was first published in 2000 after superseding IS 3257 : 1980 ‘Stainless steel compartmental trays’, IS 3258 : 1980 ‘Stainless steel serving utensils’, IS 3411 : 1985 ‘Stainless steel cooking utensils’ and IS 3424 : 1985 ‘Stainless steel table utensils’ and subsequently revised in 2017 and 2022. The following major modifications have been incorporated in the revision of the standard:

- a) Scope of the standard has been modified to include only the utensils used for purposes of domestic use;
- b) Permissible reduction in pressing and spinning process has been increased;
- c) Classification criteria has been added;
- d) Definitions have been added for all types of utensils covered in the standard;

- e) Minimum thickness of the sheet to be used for manufacturing the utensil has been modified; and
- f) Marking requirements have been modified;

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.

## **1 SCOPE**

This standard lays down the minimum requirements for following types of stainless steel utensils, up to 15 litres capacity and 500 mm in diameter/length/width (where capacity cannot be measured):

- a) Cooking utensil;
- b) Serving utensils;
- c) Table utensils; and
- d) Storage utensils

NOTE — The figures of the utensils included in this standard are for representation only.

### **1.1 Applicability of Clauses**

**1.1.1** All clauses are applicable to cooking utensils and serving utensils (Type CS).

**1.1.2** Clauses **2, 3, 4, 5, 8** and **9** (reference, materials, classification, workmanship, marking and packaging) are also applicable for:

- a) Serving utensils (Type S);
- b) Table utensils; and
- c) Storage utensils.

## **2 REFERENCES**

The Indian 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 revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed in Annex A.

## **3 MATERIAL AND DEFINITIONS**

**3.1** The stainless steel used for manufacture of utensils shall conform to IS 5522 or grades of 5522 as per IS 6911 or IS 15997.

**3.2** The material used for composite bottom shall be as per IS 15960.

**3.3** If the body of the utensil is made of a 3-ply construction, 3-ply material shall be made with inner layer – Designation X04Cr19Ni9 (grade 304) of IS 5522/IS 6911, middle layer – Aluminium as per IS 21 and outer layer – Designation X07Cr17 (grade 430)/X02Cr18Ti (grade 439) of IS 6911.

NOTE — Only chemical composition of stainless steel and aluminium needs to be complied with.

**3.4** If the utensil is provided with a stainless steel lid, the material of lid shall be as per IS 5522 or grades of 5522 as per IS 6911 or IS 15997.

**3.5** If the utensil is provided with a tempered glass lid, the lid shall conform to the performance requirements as given in IS 2347. 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 grades of 5522 as per IS 6911 or IS 15997. The minimum thickness of the rim shall be 0.25 mm.

#### **4 SHAPES, DIMENSIONS, CLASSIFICATIONS AND DEFINITIONS**

**4.1** The shapes and dimensions for various types of utensils shall be as per the agreement between the purchaser and the manufacturer. However, some of the shapes of different types of utensils are given in Annex B for guidance.

**4.2** The minimum thickness of the sheet used for manufacturing of utensils shall conform to Table 1 and 2. The permissible reduction in the thickness of the finished utensils, taking into account the pressing or spinning process, shall not be more than 20 percent for pressing and 60 percent for spinning on the minimum sheet thickness specified as per Table 1 and Table 2. For fabricated utensils, the reduction in the thickness of the sheet is not applicable.

#### **4.3 Classification**

**4.3.1** Where specified, the utensil shall be classified as follows:

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

**Table 1 Utensil Body**  
(Clause 4.2)

Sl No.	Type of Utensil	Heavy		Medium		Light	
		Vessel with cladding	Vessel	Vessel with cladding	Vessel	Vessel with cladding	Vessel
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Cooking Utensil	0.7	0.9	0.5	0.7	0.5	0.5
ii)	Serving Utensil Type CS	0.7	0.9	0.5	0.7	0.5	0.5
iii)	Serving Utensil Type S	-	0.7	-	0.6	-	0.3
iv)	Table Utensil	-	0.7	-	0.5	-	0.3

v)	Storing Utensil	-	0.7	-	0.5	-	0.3
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**Table s2 Utensil Lid**  
(Clause 4.2)

Sl No.	Type of Utensil	Minimum Thickness of sheet in mm		
		Heavy	Medium	Light
(1)	(2)	(3)	(4)	(5)
i)	Cooking Utensil	0.4	0.4	0.3
ii)	Serving Utensil Type CS	0.4	0.4	0.3
iii)	Serving Utensil Type S	0.4	0.4	0.3
iv)	Table Utensil	0.4	0.4	0.3
v)	Storing Utensil	0.4	0.4	0.3

**4.4** The material thickness for 2-ply and 3-ply composite bottom of stainless steel utensil shall be as per IS 15960.

**4.5** The minimum sheet thickness of 3-ply full body utensil shall be 2.5 mm.

#### **4.6 Definitions**

**4.6.1** *Cooking Utensils or Cookware* — Utensils intended for use in the preparation and/or cooking of food or beverages on the top of a stove, or any other heating appliance.

**4.6.2** *Serving Utensils* — Utensils intended for use in serving of food or beverages, it could be hot or cold.

- a) *Serving Utensils Type CS* — can be used for cooking also; and
- b) *Serving Utensils Type S* — cannot be used for cooking.

**4.6.3** *Table Utensils* — Utensils intended for use on the table, for eating of food or drinking of water or beverages, it could be hot or cold. It cannot be used for cooking.

**4.6.4** *Storage Utensils* — Utensils intended for storage of food, could be hot or cold. It cannot be used for cooking.

### **5 WORKMANSHIP AND FINISH**

**5.1** The utensils shall be free from wrinkles, scratches, and other surface defects, when checked with naked eyes or corrected vision. The utensils generally be bright finish, matt finish or combination of both finish and shall not rock when placed on a gas stove (*see* Note). In case of electrolytic copper deposition on the utensils at the bottom, the coating shall be free from defects such as uncoated area and their superficial blemishes visible to the naked eye.

NOTE— Flat bottom utensil shall not rock when placed on flat surface.

**5.2** The construction of the utensils shall be such that, it is possible to clean them thoroughly and all surfaces for cleaning are accessible by hand or brush.

**5.3** Metal handles shall be fitted to the utensils by spot welding or riveting. Spot welded joints shall not have any crevices. In case of plastic handles, it shall be suitably fitted to the body through a metal bracket or ferrule fixed to the utensil by spot welding or riveting. Stainless steel rivets or stainless-steel capped aluminum rivets can be used to fix the handles on utensils. The material for the stainless-steel rivets shall be as per IS 6527. The material of the stainless steel cap shall be as per IS 5522 or grades of IS 5522 as per IS 6911 or 15997.

**5.4** Where handles are required, the requirements for handles shall conform to IS 13395.

**5.5** In case material as per IS 15997 comes in contact with food, there shall be no welding on the food contact area of the utensil.

**5.6** After processing 3-ply utensils, there shall be no oozing of the middle layer or any delamination of the layers when checked visually at the edges.

**5.7** If required by the purchaser, the utensils (cooking utensil and serving utensils Type CS) may be supplied with non-stick unreinforced coating conforming to IS 9730. The Coating should be PFOA and BPA free (supplier certificate is only acceptable).

**NOTES**

- 1 In case of utensils, which have a honeycomb/square type of etching/embossing structure on the inside of the utensil, the sample used for tests conforming to IS 9730 shall be as given below:
- 2 Similar utensil without a honeycomb/square type of etching/embossing structure would go through all the process of manufacture and coating.

**6 TESTS**

**6.1 Staining Test**

The surface of the utensil (vessel and lid) shall be thoroughly washed with hot soapy water. Thoroughly rinse and then degrease the test specimens in acetone or methylated spirits, then wipe using a soft cloth. The utensils, when dipped for 16 h in each of the following solutions maintained at  $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$  temperature, shall not show any sign of staining after removal from the solutions at the end of above period:

- a) Ten gram of glacial acetic acid (99 percent) dissolved in distilled water to make 100 ml; and
- b) Five grams of pure sodium chloride dissolved in distilled water to make 100 ml;

**NOTES**

- 1 The vessel and lid can be tested separately in case of lid, the lid should be dipped in the solution.
- 2 It is a type test and applicable only for cooking utensil and serving utensils Type CS.

**6.2 Mechanical Shock Test (for Cladded Utensils Only)**

The utensil body shall be supported in air with the bottom side up and a steel ball weighing half a kilogram  $\pm 5$  gms dropped on to it from the height of 500 mm five times. After completion of the test, the cladded or deposited layer shall not show sign of peeling off or coming off.

### **6.3 Thermal Shock Test (for Cladded Utensils Only)**

The utensil body only shall be kept in an oven to attain a temperature of 275°C (+ 25 °C/– 0 °C). Thereafter the utensil shall be removed and dipped immediately in water maintained at room temperature. This process shall be repeated three times and at the end of the process the deposited layer/cladding shall not show any sign of peeling off or coming off.

### **6.4 Dry Heat Test (for Cladded Utensils Only)**

The utensil body only shall be heated up to 250 °C (+ 25 °C/– 0 °C) on induction and immediately quench in water (water temperature before quenching shall be around (35 °C  $\pm$  5 °C ). Repeat the cycle for 25 times on induction and repeat the cycle for 25 times on gas. Check the bottom for bulge, separation of disc or blisters after cooling every cycle. There shall be no separation of cowl or disc from the utensil after cooling.

### **6.5 Coating Thickness Test (for Copper Deposit)**

The total thickness of the utensil including copper deposit shall be measured. The copper deposit shall then be stripped off in two areas of required size. The thickness of the stainless steel sheet shall then be measured. The difference between the total thickness including copper deposited and the thickness of stainless-steel sheet be considered as the thickness of the copper deposited. This test is for electro deposition of copper only.

**6.6** For 3-ply construction utensil body, the body shall be tested as per **6.6.1**. The body shall not show any separation (or delamination) of the 3-ply or shall not show blisters, after the completion of 50 heat cycles.

**6.6.1** Heat the utensil body to 250 °C (+ 25 °C/– 0 °C) and quench in water at ambient temperature. Before quenching, the utensil body shall be checked at a minimum of two locations to confirm, that the temperature of the utensil body has attained 250 °C (+ 25 °C/– 0 °C). Temperature to be measured at inside bottom and top edge (mouth portion) of the utensil (record the temperature for at least the first and the last cycle). Repeat this cycle 50 times.

#### NOTES

- 1 Hold (soak) the utensil body for 2 min at 250 °C (+ 25 °C/– 0 °C) under heating condition, before measuring and subsequent quenching in ambient temperature water.
- 2 For guidance purposes, the heating source may be a hot air oven or any other equipment which can be used to achieve such temperature.

### **6.7 Nominal Capacity Test**

**6.7.1** The nominal capacity of cookware 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.

NOTE — If the capacity of a utensil is not in complete or half-litre unit, its nominal capacity shall be marked as the nearest lower complete or 100 ml units. For example, in the case of a utensil having a capacity of 3.95 l, the nominal capacity to be marked shall be 3.9 l or less.

**6.7.2** In case the marking or labelling is in terms of diameter, the internal diameter of 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 0.5 cm units. No negative tolerances shall be allowed on the diameter.

NOTE — If the diameter is 39.2 cm, its diameter shall be marked as the nearest lower complete of 0.5 cm units i.e. diameter to be marked 39 cm or less.

## **7 SAMPLING**

**7.1** Unless agreed to between the purchaser and the manufacturer, the sampling of utensils and criteria of conformity shall be done in accordance with IS 9040 for dimensional and staining test.

**7.2** The tests **6.2, 6.3, 6.4, 6.5, and 6.6** are type tests applicable to clad utensils and shall be done on separate sample in every month or one in 50,000 utensils manufactured, whichever is less. To ensure the quality of the utensils, additional tests shall be conducted on one utensil selected at random once a month or one in 50,000 utensils, whichever is less in the order as specified in Table 3.

**Table 3 Additional Test**  
(Clause 7)

<b>Sl No.</b> (1)	<b>Tests</b> (2)	<b>Remarks</b> (3)
i)	Sample 1: a) Mechanical shock test ( <i>see 6.2</i> ) b) Thermal shock test ( <i>see 6.3</i> )	If found OK subject to next test Only for electrodeposited utensils
ii)	Sample 2: Staining test ( <i>see 6.1</i> )	This test is to be carried out for every 5 000 pieces or once in a month whichever is earlier. (For cooking utensil and serving utensils Type CS)
iii)	Sample 3: Dry heat test ( <i>see 6.4</i> )	For bottom clad 2-ply and 3-ply construction utensils
iv)	Sample 4: Dry heat test ( <i>see 6.6</i> )	For 3 ply full body utensils

## **8 MARKING**

**8.1** Each utensil shall have the following details:

- a) Capacity in litre/millilitre or size in cm of utensil;

- b) Thickness of Sheet or Classification;
- c) Material grade ;
- d) Manufacturer name or initials or trademark; and
- e) Batch number or year of manufacture (yyyy).

**NOTES**

- 1 The details can be marked in the form of a sticker/leaflet in case it cannot be stamped, embossed or etched.
- 2 For cooking utensils, a, b, c, d, and e to be marked on utensils only.
- 3 For other utensils not used for cooking, b, d, and e to be marked on utensils only.
- 4 Details can also be put up on primary packaging for both lid and utensil.
- 5 For small utensils other than cooking utensils, details can be put on the packaging.

**8.2 BIS Certification Marking**

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.

**9 PACKING**

Each utensil shall be suitably packaged to avoid any damage during transit.



**ANNEX A**

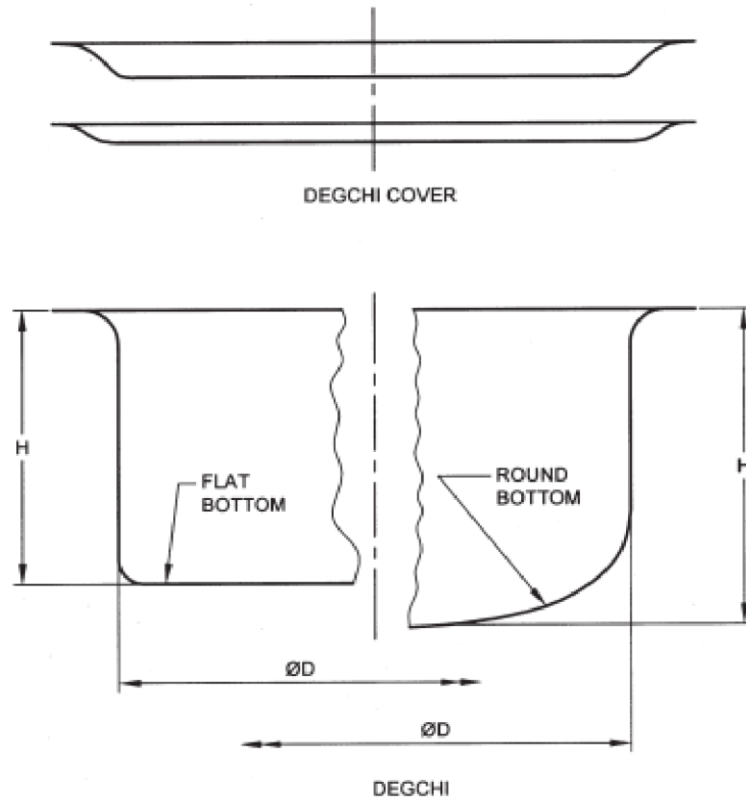
**LIST OF REFERRED INDIAN STANDARDS**

<i>IS No.</i>	<i>Title</i>
IS 21 : 1992	Wrought aluminium and aluminium alloys for manufacture of utensils — Specification ( <i>fourth revision</i> )
IS 5522 : 2014	Stainless steel sheets and strips for utensils — Specification ( <i>third revision</i> )
IS 6527 : 1995	Stainless steel wire rod — Specification ( <i>first revision</i> )
IS 6911 : 2017	Stainless steel plate, sheet and strip — Specification ( <i>second revision</i> )
IS 9040 : 1978	Methods for sampling of utensils
IS 9730 : 2008	Non-Stick unreinforced plastics coatings on domestic cooking utensils — specification ( <i>first revision</i> )
IS 13395 : 2021	Performance of handles and handle assemblies attached to cookware — Specification ( <i>first revision</i> )
IS 15960 : 2013	Composite bottom stainless-steel cooking utensils — Specification
IS 15997 : 2012	Low nickel austenitic stainless steel sheet and strip for utensils and kitchen appliances — Specification

**ANNEX B**  
*(Clauses 4.1)*

**DIAGRAMMATIC SHAPE OF DIFFERENT TYPES OF UTENSILS**

**A-1** Diagrammatic shape of different types of utensils 'H' is the height and 'D' is the diameter shall be as shown in Fig. 1 to Fig. 14. In these figures:



**FIG. 1 DEEP DEGCHI**

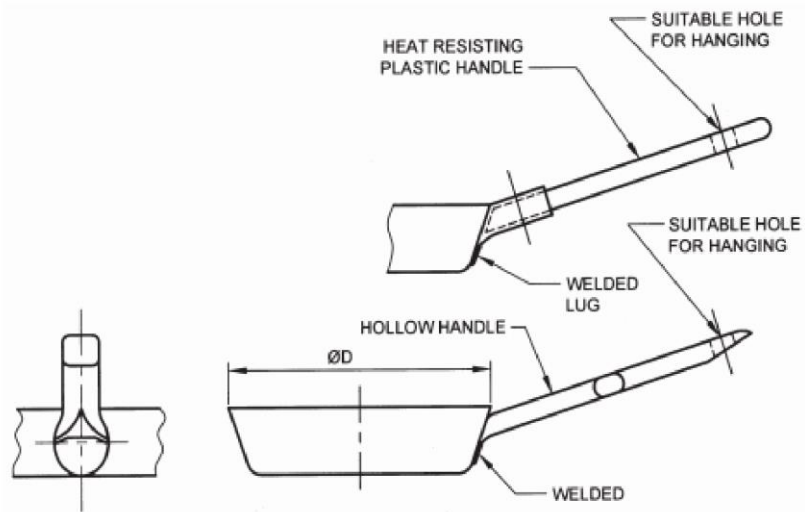


FIG. 2 FRYING-PAN

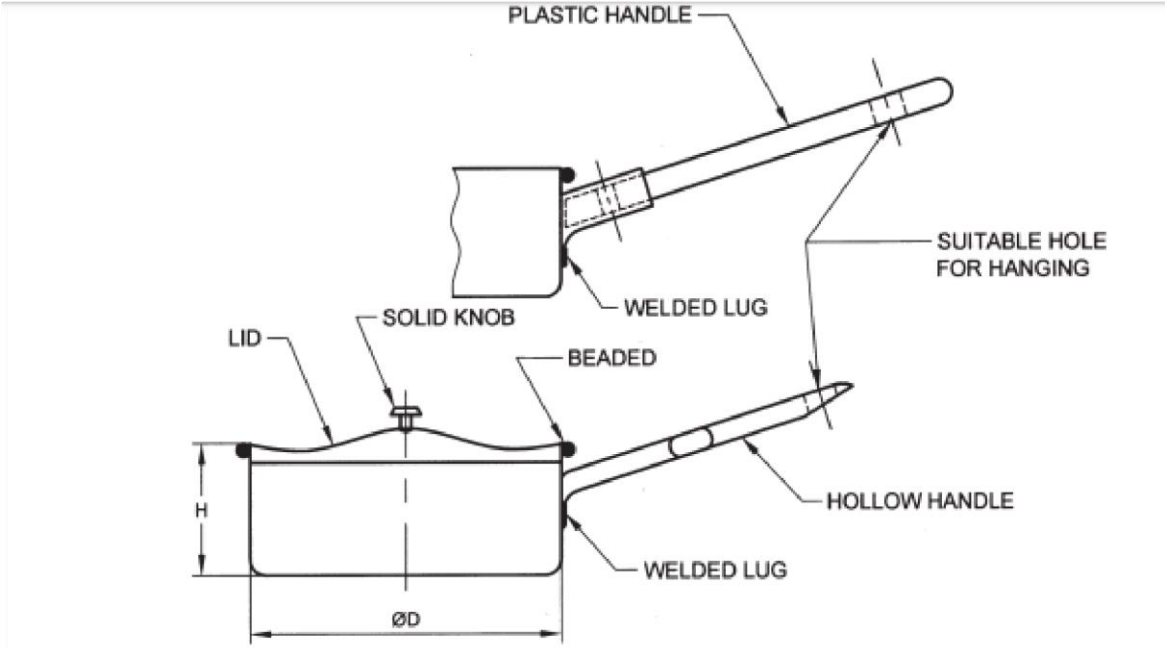
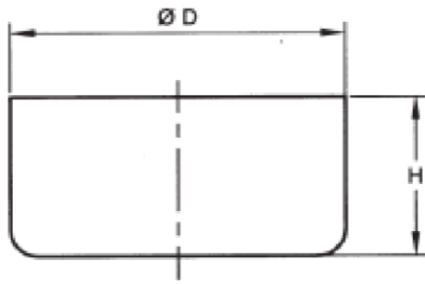
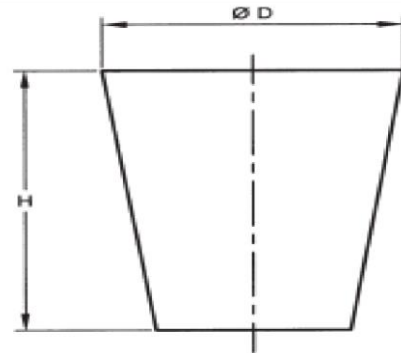


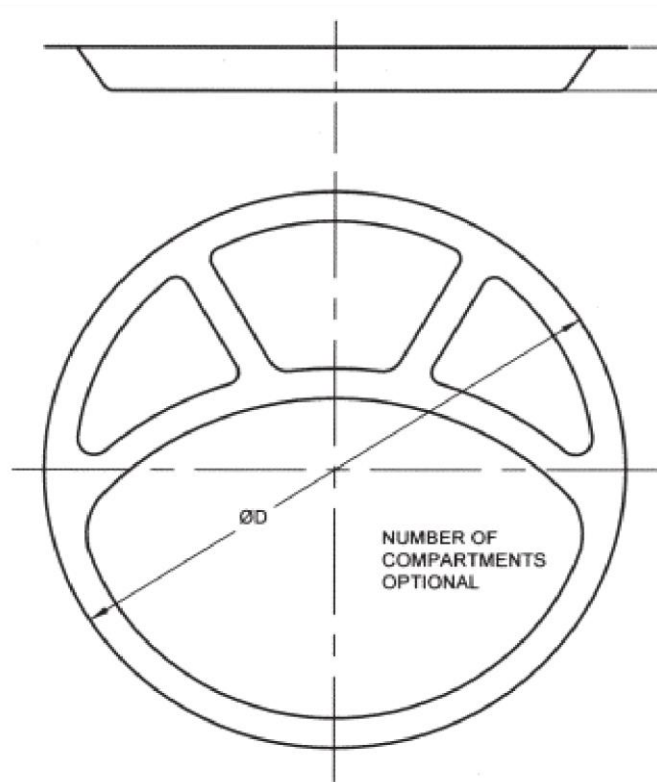
FIG. 3 SAUCEPAN



**FIG. 4 KATORI**



**FIG. 5 TUMBLER**



**FIG. 6 COMPARTMENTAL TRAY, ROUND**

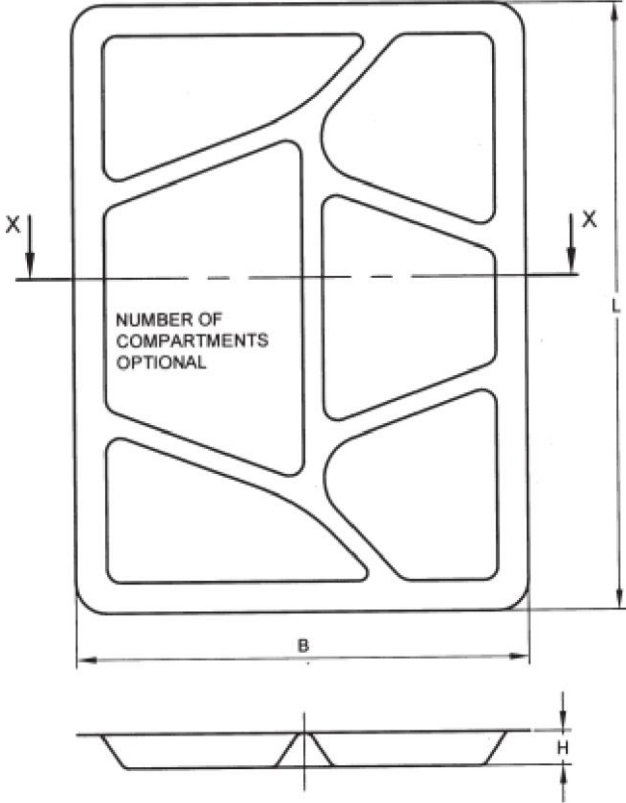


FIG. 7 COMPARTMENTAL TRAY, RECTANGULAR

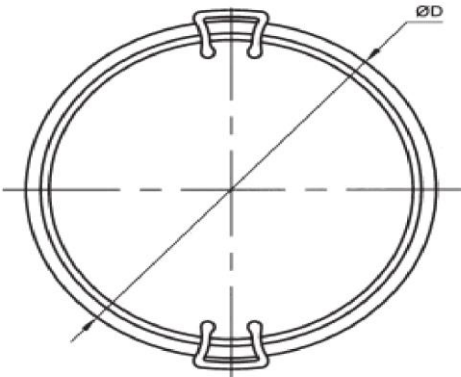
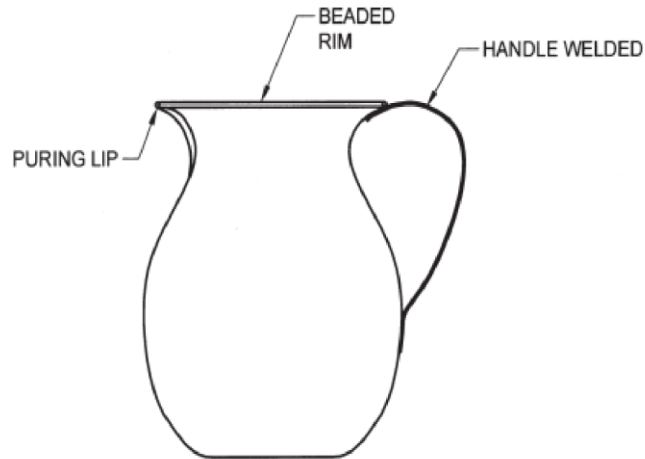
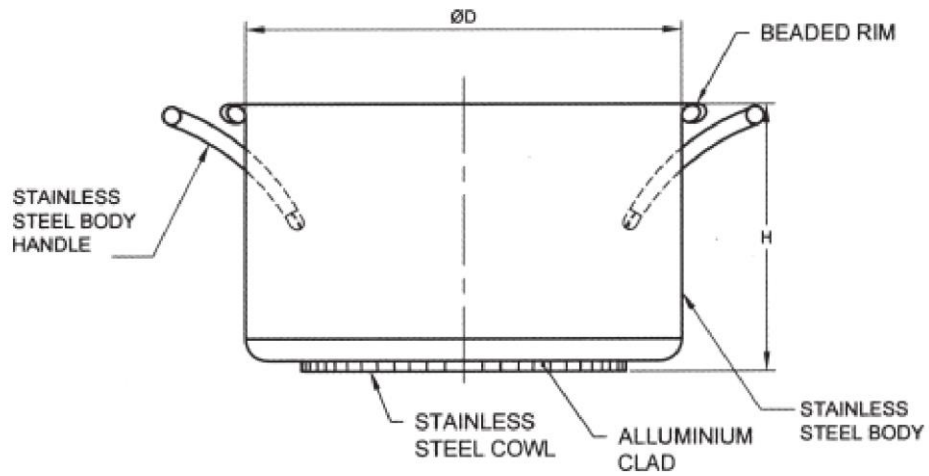


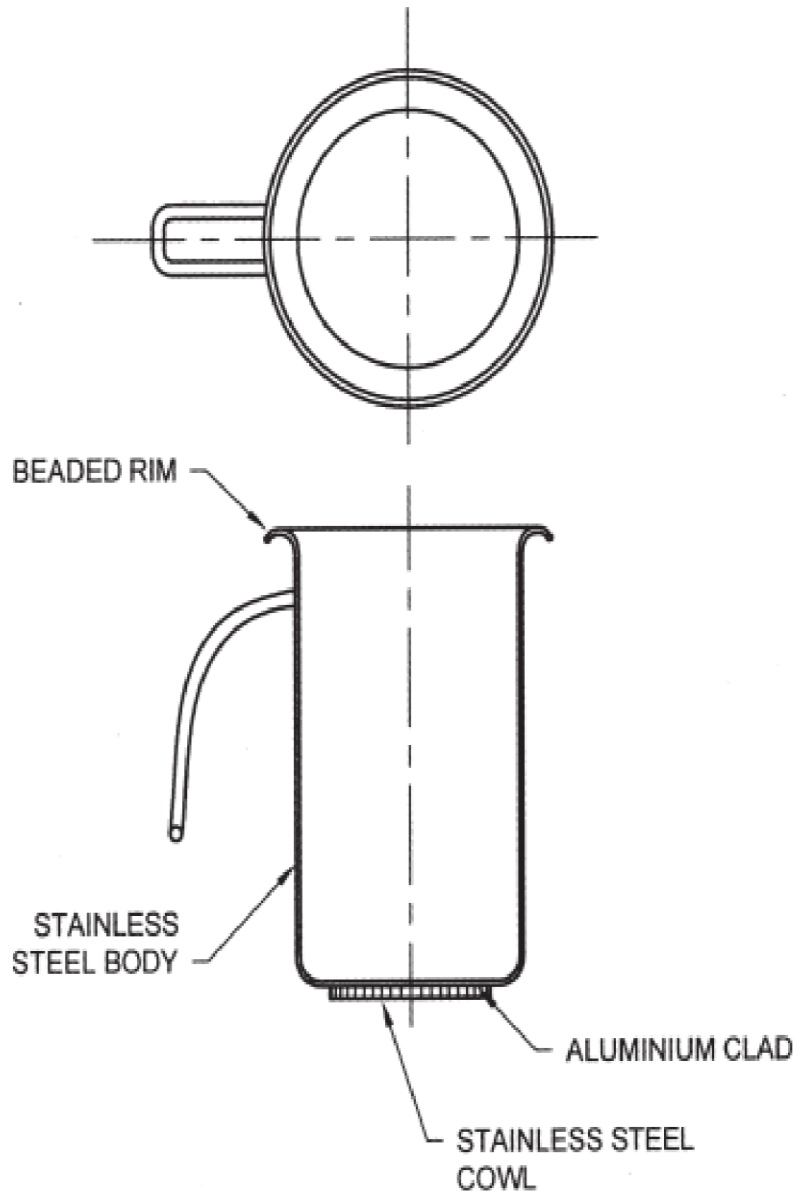
FIG. 8 ENTREE DISH, ROUND



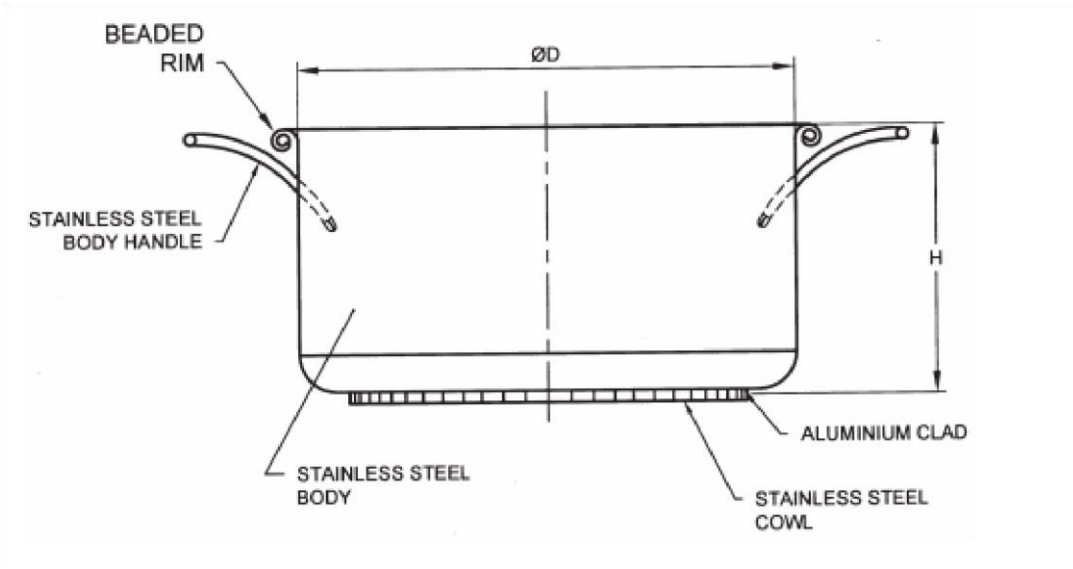
**FIG. 9 JUG TYPICAL**



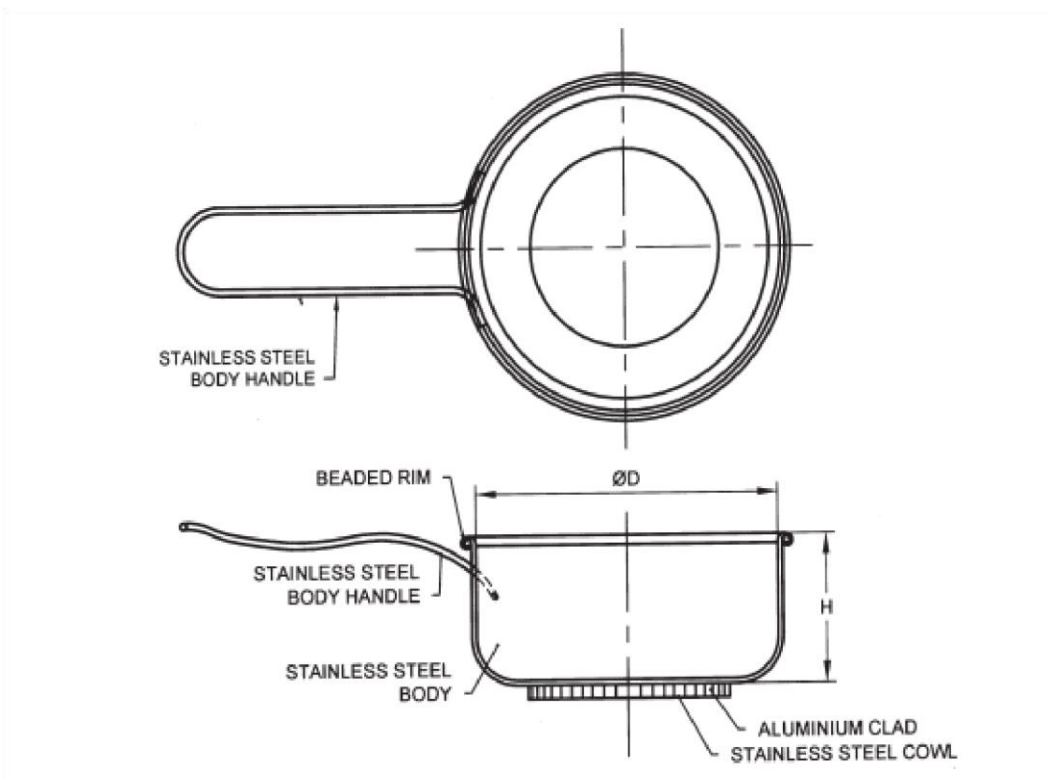
**FIG. 10 CASSEROLE WITH CLADDED BASE**



**FIG. 11 JUG WITH CLADED BASE**

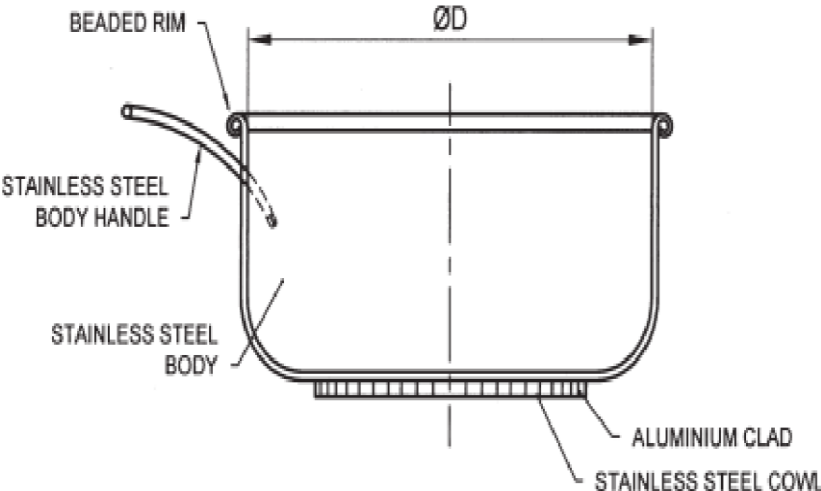


**FIG. 12 DEEP POT WITH CLADED BASE**



**FIG. 13 FRY PAN WITH CLADED BASE**





**FIG. 14 SAUCE PAN WITH CLADDED BASE**