

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा
एल्युमिनियम मिश्र धातु से बने दूध के डिब्बे — विशिष्टि
(आई एस 1825 का तीसरा पुनरीक्षण)

Draft Indian Standard
ALUMINIUM ALLOY MILK CANS — SPECIFICATION
(*Third Revision of IS 1825*)

ICS 65.040.10

Dairy Equipment Sectional Committee, FAD 33

Last date of comments : **03 March 2025**

FOREWORD

(Formal clauses will be added later)

An ideal milk can has to be designed in such a way that it should transport its contents safely without spillage and with minimum of churning. It should also withstand rough handling, occupy minimum space on trucks or lorries, allow a high degree of sterilization and should also facilitate cleaning. Further, it has to be light and durable. This standard has been drawn up giving due consideration to all these points.

This standard was originally published in 1961 and subsequently revised in 1971 and 1983. In this revision, the following major changes have been done considering the latest manufacturing technology and practices of using milk cans:

- a) cans with rated capacity of 30 liters and 40 litres have been added as delivery cans;
- b) in the dimensions, fig. 1, H_{\min} for 20 litres can has been reduced from 2.5 mm to 1.8 mm; and
- c) the requirement for anodization has been made mandatory and the thickness of anodization has been kept as 12 μm to 15 μm .

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 prescribes the requirement for aluminium alloy milk cans used for collection and distribution of fluid milk. This standard covers cans of:

- a) rated capacity of 20, 30 and 40 litres in case of delivery cans; and
- b) rated capacity of 20, 30, 40 and 50 litres in case of transport cans.

2 REFERENCE

The standards listed in 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 edition of these standards.

<i>IS No.</i>	<i>Title</i>
IS 733: 1983	Specification for wrought aluminium and aluminium alloy bars, rods and sections (for general engineering purposes) (<i>third revision</i>)
IS 737: 2024	Wrought aluminium and aluminium alloy sheet and strip for general engineering purposes – specification (<i>fifth revision</i>)
IS 812 (Part 1): 1957	Glossary of terms relating to welding and cutting of metals
IS 1500(Part 1) : 2019	Metallic materials – Brinell hardness test : Part 1 Test method (<i>fifth revision</i>)
IS 2927: 1975	Specification for brazing alloys (<i>first revision</i>)
IS 4905: 2015/ ISO 24153: 2009	Random sampling and randomization procedures (<i>first revision</i>)
IS 7273: 1974	Methods of testing fusion welded joints in aluminium and aluminium alloys

3 CAPACITY

The rated capacity of the can shall be taken as the quantity of water measured in litres which fills the can to the junction of the shoulder and the neck. This quantity shall be within a tolerance of ± 2 percent of the rated capacity.

4 MATERIAL

4.1 Can Body and Can Lid

The can body and can lid shall be made from sheets of aluminium alloy conforming to IS designation 64430 (HS-30) of IS 737, with copper content as near as possible to 0.05 percent.

4.2 Handles and Ears for Handles

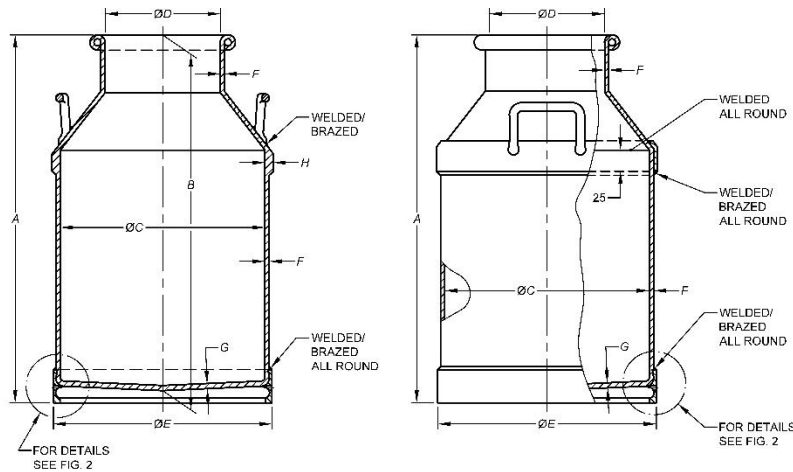
These shall be made from extruded section of aluminium alloy conforming to designation 64430 of IS 733. Ear for handles may also be made from sheets and strips of aluminium alloy conforming to IS designation 64430 of IS 737.

4.3 Bottom Band

This shall be made from extruded section of aluminium alloy conforming to IS designation 64430 of IS 733.

5 SHAPE AND DIMENSIONS

5.1 The can shall be manufactured in accordance with the shape and dimensions shown in Fig. 1 to 6. The drain holes may be oval, circular, diamond or ‘D’ shaped (see Fig. 2).



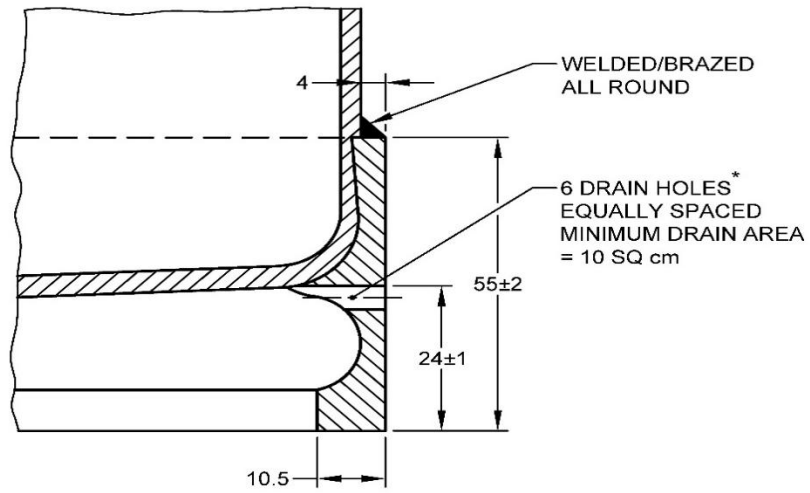
1A One-Piece (Monobloc)

1B Alternate Design

All dimensions in millimetres.

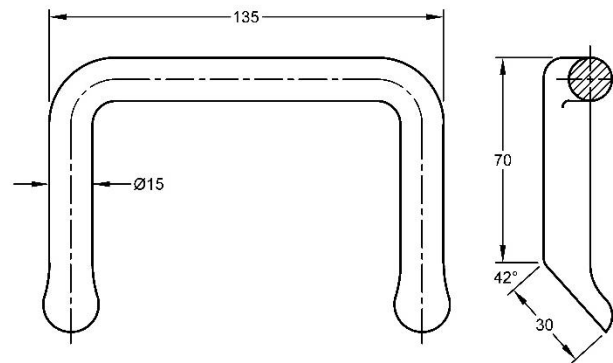
CAPACITY (IN LITRES)	A	B	C	D	E	F_{min}	G_{min}	H_{min}
20	447 ± 4	431 ± 3	280 ± 3	200 ± 0.5	292 ± 3	1.6	2.0	1.8
30	512 ± 4	496 ± 3	320 ± 3	200 ± 0.5	332 ± 3	2.0	3.0	2.5
40	591 ± 4	575 ± 3	340 ± 3	200 ± 0.5	352 ± 3	2.0	3.0	2.5
50	651 ± 4	634 ± 3	360 ± 3	200 ± 0.5	372 ± 3	2.0	3.0	2.5

FIG. 1 TYPICAL ALUMINIUM ALLOY MILK CANS — TRANSPORT TYPE (20, 30, 40 AND 50 LITRES) AND DELIVERY TYPE (30 AND 40 LITRES)



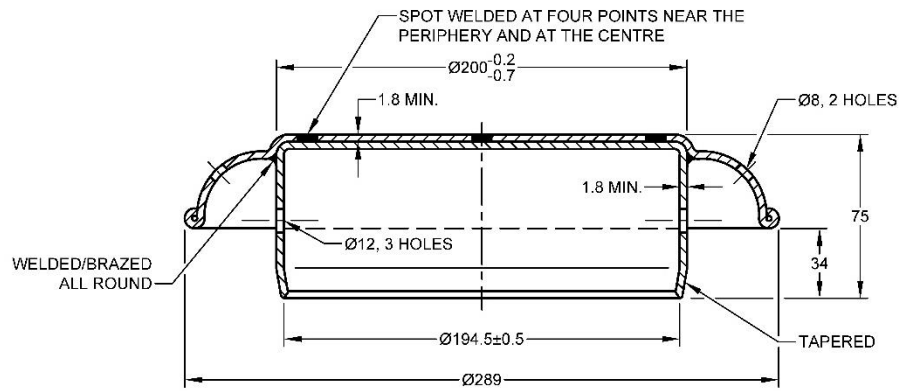
All dimensions in millimetres.

FIG. 2 BOTTOM BAND FOR ALUMINIUM ALLOY MILK CAN

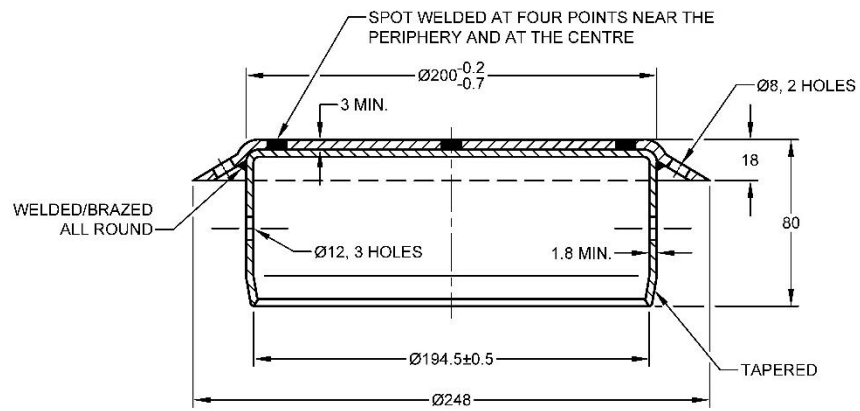


All dimensions in millimetres.

FIG. 3 HANDLE FOR ALUMINIUM ALLOY MILK CANS



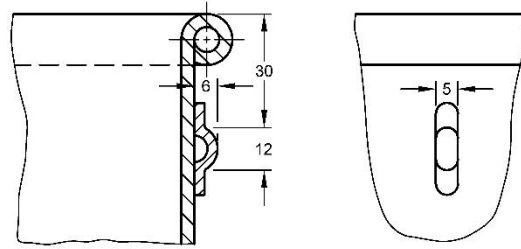
4A for 30-, 40- and 50-Litre Cans



4B for 20-Litre Cans
Transport or Delivery Type

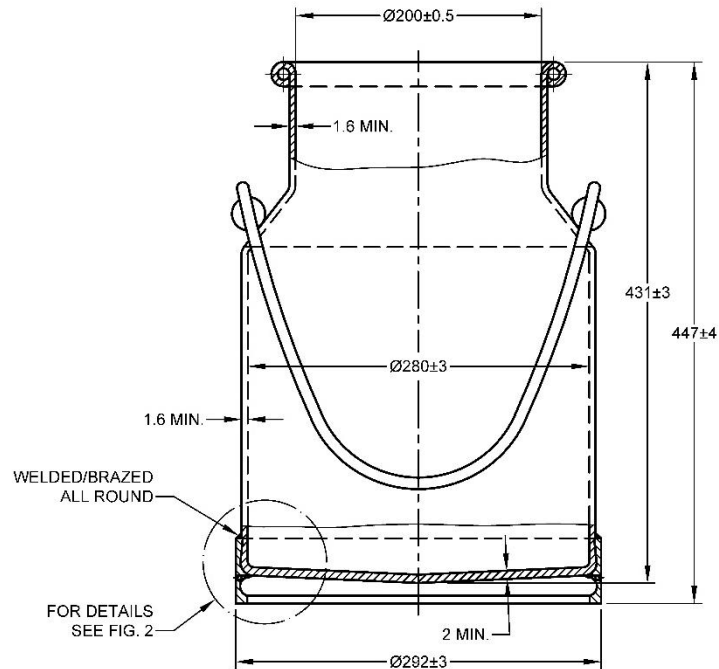
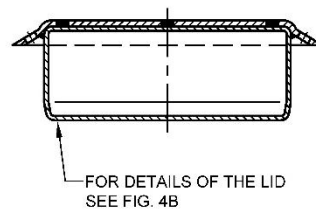
All dimensions in millimetres.

FIG. 4 LIDS FOR ALUMINIUM ALLOY MILK CANS



All dimensions in millimetres.

FIG. 5 SEALING LUG FOR ALUMINIUM ALLOY MILK CANS



All dimensions in millimetres.

FIG. 6 ALUMINIUM ALLOY MILK CAN-DELIVERY TYPE (20 LITRES)

5.2 Slight variations in the overall dimensions may be permitted provided that:

- a) Neck dimensions are in accordance with Fig. 1 and 6.
- b) Inner lid dimensions are in accordance with Fig. 4 to allow for Interchangeability, and
- c) Combined effect of permitted tolerances shall be such as not to allow a variation of more than 2 percent in the rated capacity.

6 MANUFACTURE

6.1 Part

Delivery cans of 20 litres capacity shall consist of a body, bottom band, lid and ear with handles. Transport cans of 20, 30, 40 and 50 litre capacities shall consist of a body, bottom band, lid and handles.

6.2 The minimum thicknesses for different parts of the finished cans shall be as given in Table 1.

Table 1 Minimum Thicknesses for Different Parts of The Cans
([Clause 6.2](#))

Part	Capacity in Litres				
	20 (2)	30 (3)	40 (4)	50 (5)	
(1)	mm	mm	mm	mm	mm
Body and neck	1.6	2.0	2.0	2.0	2.0
Bottom	2.0	3.0	3.0	3.0	3.0
Lid (inner)	1.8	1.8	1.8	1.8	1.8
Lid (outer)	3.0	1.8	1.8	1.8	1.8

6.3 Mode of Shaping

6.3.1 One-Piece Can

The one-piece (monobloc) can shall be manufactured by means of pressing, deep-drawing and, if necessary, subsequent spinning. Extra thickness at shoulder shall be provided during shaping to give additional strength (*see* Fig. 1A and 6).

6.3.1.1 If the thickness at the shoulder is less than 2.5 mm, a reinforcement ring of 2 mm thickness shall be provided.

6.3.2 Two Piece Can

The two-piece can body shall be manufactured by pressing, deep-drawing and, if necessary, subsequent spinning and by joining neck and body by welding. A reinforcement ring shall be provided to give additional strength (*see* Fig. 1B).

6.4 The can shall be solution heat-treated and age-hardened for maximum strength and this shall be subsequently anodized. The thickness of the anodization shall be in between 12 µm to 15 µm. The Brinell hardness of the cans shall not be less than 85 *HBW* when tested as per method given in IS 1500(Part 1).

6.5 Lids

The lids shall be manufactured by means of pressing and spinning and shall be heat-treated after manufacture. The lid shall be anodized if required by the purchaser.

6.6 Bottom Bands

The bottom band shall be made from extruded aluminium alloy section, rolled and brazed [*see* IS 2927 and IS 812 (Part 1)] or welded (*see* IS 7273) to ring shape. The bottom band shall be shrunk fit with a proper locking arrangement on the body. This shall be followed by brazing or welding all around. The joint of the bottom band to the body should be proper so as not to make the cans insanitary (*see* Fig. 2). A typical locking arrangement is also shown in Fig. 2.

6.7 Handles

The handles for transport cans and ears for delivery cans shall be brazed or welded on the body. The handles for delivery can shall be hooked to ears.

6.8 Sealing Lug

If required by the purchaser, a sealing lug shall be made to shape (*see* Fig. 5) and soundly brazed [*see* IS 2927 and IS 812(Part 1)] or welded (*see* IS 7273) on the neck.

6.9 Workmanship and Finish

All brazing or welding shall be sound, free of porosity, of adequate strength to withstand normal use and shall be finished smooth to provide a sanitary finish to all the inner surfaces.

6.10 The mass of the 20-, 30-, 40-, and 50-litre cans including the lid shall be minimum 3.9, 5.9, 6.5 and 8.0 kg respectively.

NOTE — For guidance, aluminium alloy with a specific gravity of 2.728 approximately may be used for fabrication.

7 SAMPLING AND CRITERIA FOR CONFORMITY

The method of drawing representative samples of the cans and the criteria for conformity shall be as prescribed in Annex A.

8 TESTS

8.1 The cans when immersed in water and subjected to internal air pressure of 70 kPa for five minutes shall show no signs of leakage or any other damage during or after the test.

NOTE — Care shall be taken to avoid water entering the cans during the test.

8.2 Drop Test

The cans filled to rated capacity (up to the neck) with water and with lid on shall be held in a vertical position and dropped once vertically from a height of 125 cm on a horizontal hard concrete floor or steel surface. The cans shall neither show any leakage nor suffer from any damage other than denting.

8.3 The cans when filled with water and inverted shall not show any profuse leakage through lids.

9 MARKING

9.1 The cans shall be marked legibly and permanently with the following particulars:

- a) Manufacturer's name or initials or trade-mark, if any;
- b) The rated capacity of the can in litres;
- c) Point of capacity;
- d) Batch or code number; and
- e) Any other markings which may be required by the purchaser and agreed upon between the supplier and the purchaser.

9.1.1 The product may also be marked with Standard Mark.

9.2 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 there under, and the products may be marked with the Standard Mark.

ANNEX A
([Clause 7](#))

SAMPLING OF ALUMINIUM ALLOY MILK CANS

A-1 SCALE OF SAMPLING

A-1.1 Lot

In any consignment, all the cans of the same size, shape and from the same batch of manufacture shall be grouped together to form lot.

A-1.2 Samples shall be tested separately for each lot for ascertaining the conformity of cans to the requirements of this specification.

A-1.3 The number of cans to be selected from the lot shall depend on the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

Table 2 Scale of Sampling and Permissible Number of Defectives
([Clause A-1.3](#))

NUMBER OF CANS IN THE LOT	FOR VISUAL, DIMENSIONAL REQUIREMENTS AND AIR PRESSURE TEST		FOR THICKNESS AND OTHER TESTS
	Number of Cans to be selected	Permissible No. of Defective Cans	Number of Cans to be Selected
N	n		n
(1)	(2)	(3)	(4)
3 to 25	3	0	1
26 ,, 100	5	0	1
101 ,, 300	8	0	2
301 ,, 500	13	1	2
501 ,, 1000	20	1	3
1001 ,, 3000	32	2	3
3001 and above	50	3	5

A-1.3.1 These cans shall be selected at random from the lot. To ensure the randomness of selection, a random number table (*see* IS 4905) as agreed to between the purchaser and the supplier shall be used. In case such a table is not available, the following procedure shall be used:

Starting from any can in the lot, count them as 1, 2, 3,, up to r and so on in one order, where r is the integral part of N/n , N being the number of cans in the lot and n the number of cans to be selected (*see* Table 2). Every r th can thus counted shall be withdrawn to give the required number of cans in the sample.

A-2 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 All the cans selected according to col 2 of Table 2 shall be first examined for visual and dimensional requirements given in **5.1** and **6.2** to **6.10** and then tested for air pressure according to **8.1**.

A-2.1.1 A can failing to satisfy any of these requirements shall be considered as defective. The lot shall be considered to have satisfied these requirements if the number of defectives found in the sample is less than or equal to the corresponding permissible number of defective cans given in col 3 of Table 2

A-2.2 The lot having been found satisfactory according to **A-1.2** shall be tested for thickness (*see* **6.2**) and for tests given in **8.1** and **8.3**. For each of these tests, a subsample of cans shall be selected according to col 4 of Table 2. These cans shall be selected from those already tested according to **A-2.1** and found satisfactory.

A-2.2.1 The lot shall be declared as conforming to the requirements of the specification if none of the cans tested for the requirements given in **6.3**, **8.2** and **8.3** fails to meet the corresponding specification requirements; otherwise not.