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भारतीय मानक मसौदा

ड्रमों के लिए धातु के ढक्कन — विशिष्टि
(IS 2474 का दूसरा पुनरीक्षण)

Draft Indian Standard

Metal Closures for Drums — Specification

(Second Revision of IS 2474)

ICS 55.140

Metal Containers Sectional Committee, PGD 38 Last Date for Comments: **31 July 2024**

FOREWORD

(Formal clauses will be added later.)

Metal closures for drums are used to seal and secure metal drums to prevent leakage, contamination, and tampering. The choice of the closure depends upon the product being packed in the drum and is specified by the purchaser while specifying the drum. Critical dimensions of the closure components along with the tolerances have been given in this standard to facilitate their manufacture, interchangeability and proper fitting.

In this revision, following changes have been made:

- a) References have been updated.
- b) Amendments have been incorporated.

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.

METAL CLOSURES FOR DRUMS — SPECIFICATION

(Second Revision of IS 2474)

1 SCOPE

1.1 This standard specifies the requirements for metal closures suitable for different types of drums covered in IS 2552. Following types of closures have been covered in this standard:

- a) Separate neck with inner lid and capseal (Fig. 1);
- b) Integral neck with inner lid and capseal (Fig. 2);
- c) Liver lid, tight fit (Fig. 3); and
- d) 44 mm screwed closure (Fig. 4).

1.2 This standard does not cover the use of bung type screwed closures and the tight lid bitumen drum closures as they have been covered separately in IS 1784 and IS 3575, respectively.

2 REFERENCES

The standards listed below 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 below:

<i>IS No.</i>	<i>Title</i>
IS 1394 : 1984	Glossary of terms relating to metal containers (<i>third revision</i>)
IS 1784 : 2020	Screwed closures for drums — Specification (<i>fourth revision</i>)
PGD 38(24488)	Steel drums (galvanized and ungalvanized) — Specification (<i>fourth revision of IS 2552</i>)
PGD 38(24489)	Bitumen drums — Specification (<i>fourth revision of IS 3575</i>)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1394 and as shown in Fig. 1 to 4 shall apply.

4 SIZES AND DIMENSIONS

The sizes and dimensions of the various closures shall conform to those given in Fig. 1 to 4.

5 MATERIAL

5.1 Neck

The integral necks shown in Fig. 2 and 3 shall be drawn from the top plate of the drum. The separate neck shown in Fig. 1 shall be drawn to the shape from the same thickness of sheet as the drum top.

5.2 Plug

Unless, otherwise specified by the purchaser, the plug shall be made from the same material as that of the drum. The thickness of the sheet used for the manufacture of the plug shall be from 0.50 mm to 0.63 mm.

5.3 Capseal

The capseal shall be manufactured from 0.25 mm to 0.30 mm thick tinsplate or blackplate or aluminium sheet. The capseal shall be lined with paper or rubber latex compound. The rubber latex compound shall be of annular shape and compatible with the contents to be packed. The paper used as washer in the capseal shall be not less than 0.15 mm in thickness and shall have a substance of $105 \pm 5 \text{ g/m}^2$ with bursting strength not less than 28 kPa.

6 MANUFACTURE AND FINISH

6.1 The plugs and the capseals shall be pressed to design and shape shown in Fig. 1 and 2. The capseal shall either be lined with paper washer which shall extend up to the cut edge of the capseal or coated with rubber latex compound. The paper washer and the latex compound lining shall be of uniform thickness, firmly adherent and free from discontinuities. The metal components of the closures shall be free from splits, cracks, burrs, deformations and other surface defects.

6.2 In case of screwed closures as shown in Fig. 4, the neck shall be pressed and rolled to dimensions. The screw cap shall be pressed, rolled, knurled to dimensions, and the inner seal shall be pressed to dimensions.

6.3 Assembly

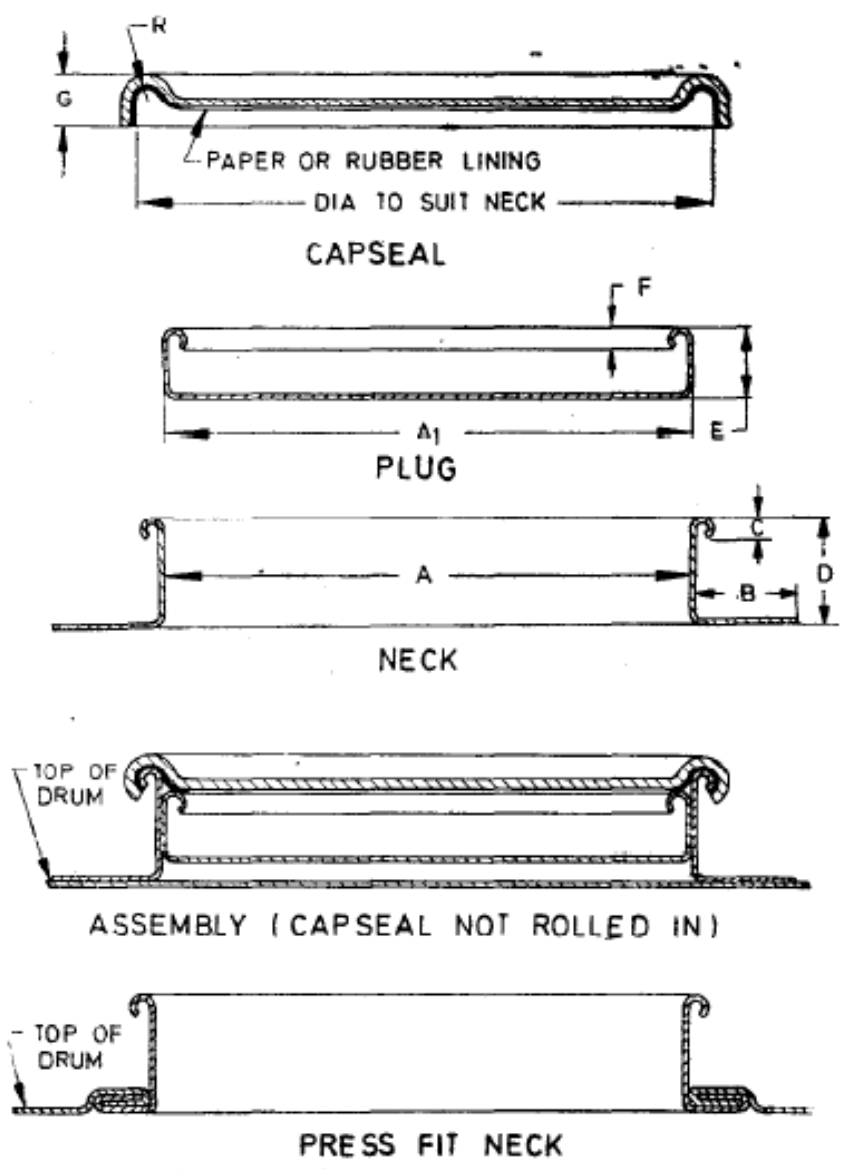
In case of the separate neck shown in Fig. 1, the neck shall be well made and secured all around the drum top by welding. There shall be no distortion of the neck due to welding and that the top rim of the neck shall be perfectly in horizontal plane.

6.3.1 In the case of the integral neck, the neck for the closure, shall be drawn to shape from top of the drum as shown in Fig. 2. The top edge of the neck shall be curled outwards. The curling shall be of uniform thickness and shall be more than two-thirds of the circle and free from cracks, distortions and other surface defects.

6.3.2 In case of screwed closures as shown in Fig. 4, the screwed neck is clinched into the drum top in two operations on a power press. The first operation is perforating the drum top and second the screwed neck is inserted and clinched in. The sealing compound along the clinching rim ensures a leak proof joint.

6.3.2.1 The screw cap is screwed on to the screw nozzle by screw cap wrench which takes a firm grip on the knurl provided on the screw cap rim.

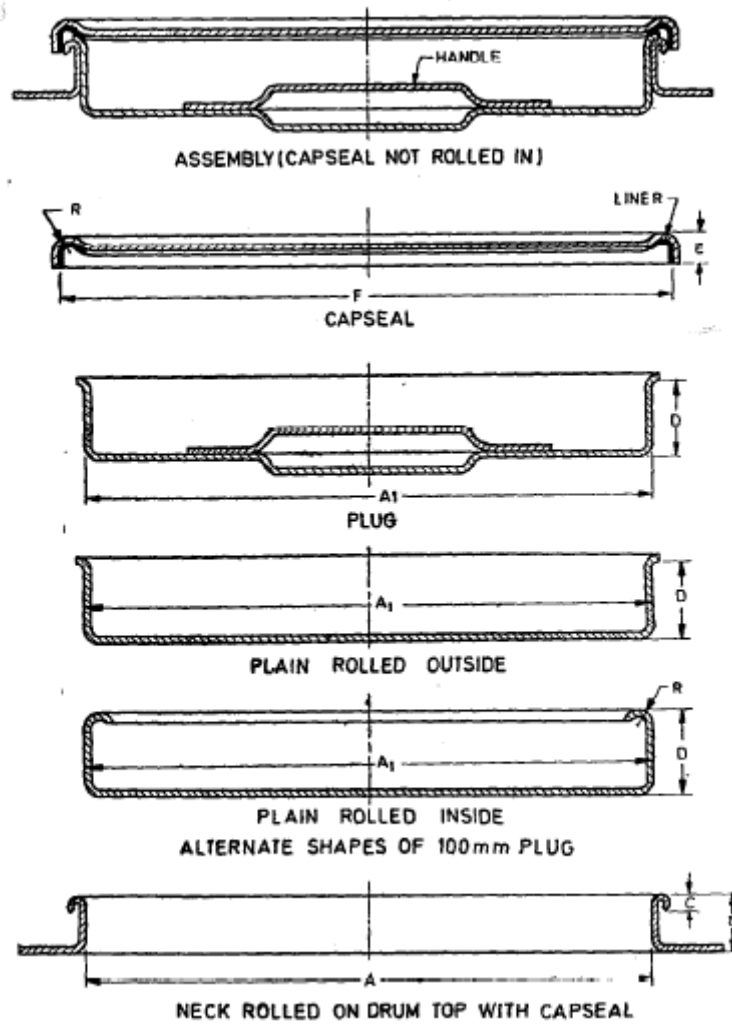
6.3.2.2 The inner seal is fitted by inner seal fixing tool after the drum is filled.



Nominal Size	Neck				Plug			Capseal	
	A	B	C	D	A ₁	E	F	G	R
75	75.0	13.0	3.0	10.0	75.0	8.0	4.0	6.0	1.5
100	100.0	13.0	3.0	10.0	100.0	8.0	4.0	6.0	1.5
Tolerance	+0 -0.1	+0.5 -0	+0.5 -0	+0.5 -0	+0.1 -0	±0.5	Min	Min	—

All dimensions are in millimetres.

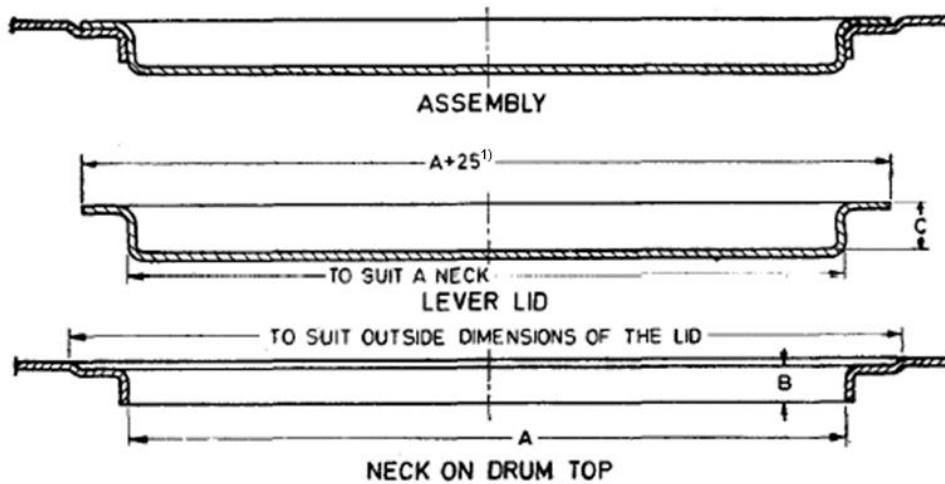
FIG. 1 SEPARATE NECK WITH INNER LID AND CAPSEAL



Nominal Size	Neck			Plug			Capseal		
	A	B	C	A ₁	D	R	E	F	R
100	100	10	3.0	100	8.0	1.5	6.0	108.0	1.5
175	176	10	3.0	176	8.0	1.5	6.0	183.0	1.5
225	227	10	3.0	227	8.0	1.5	6.0	234.0	1.5
275	279.5	10	3.0	279.5	8.0	1.5	6.0	287.0	1.5
Tolerance	+0 -0.1	+1 -0	+0.5 -0	+0.1 -0	+1.5 -0	—	+0.5 -0	+0.25 -0	—

All dimensions are in millimetres.

FIG. 2 INTEGRAL NECK WITH INNER LID AND CAPSEAL



All dimensions are in millimetres.

Nominal Size	Dimensions		
	$A^{+0.000}_{-0.125}$	<i>B</i>	<i>C</i>
38	38.000	8.0	10.0
100	100.000	10.0	13.0
125	125.000	10.0	13.0
150	150.000	10.0	13.0
200	200.000	10.0	13.0
225	225.000	10.0	13.0
250	250.000	10.0	13.0

¹⁾ In case of 38 mm size closure, this dimension shall be 46 mm.

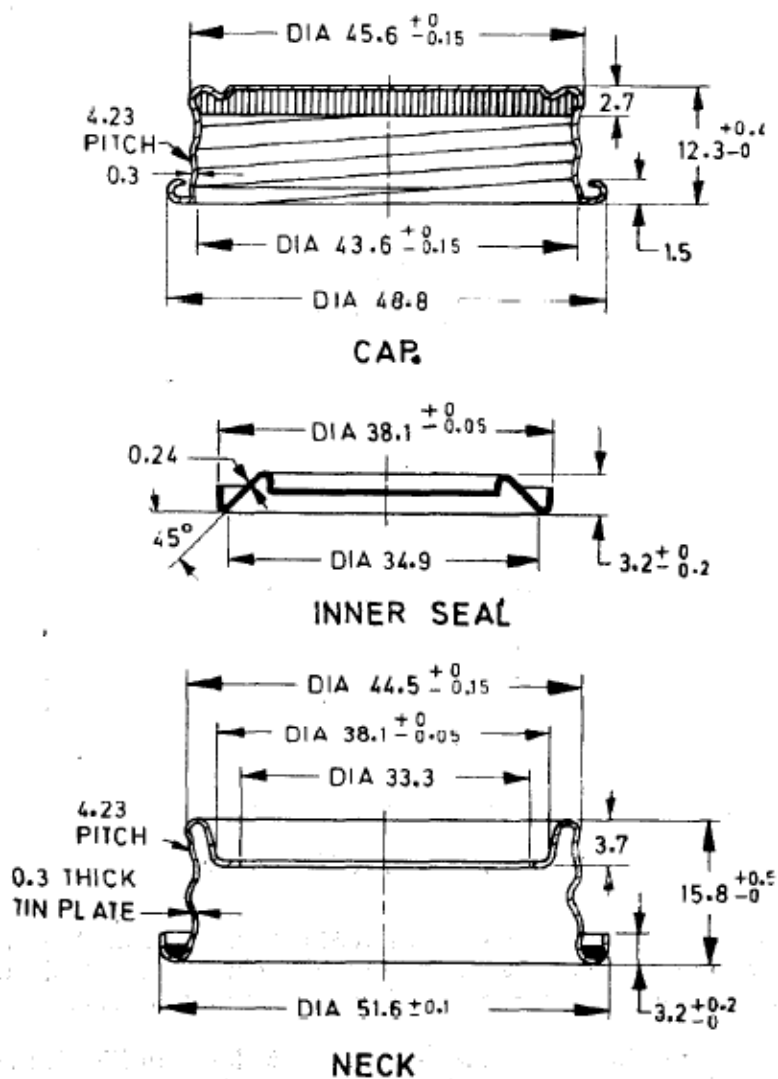
FIG. 3 LEVER LID, TIGHT FIT

7 TESTS

7.1 The closures shown in Fig. 1 and Fig. 2 shall be subjected to the internal air pressure of 40 kPa for 15 s. The tests shall be carried out after the closure components with capseal crimped on shall be fitted to the drum top and the leakage shall be tested by immersing the closure in water for 15 s. There shall be no sign of leakage at the closures.

7.2 The closures shown in Fig. 4 after assembly on the drum top shall be subjected to an internal air pressure of 109 kPa, for 15 s. The leakage shall be tested by immersing the closure in water for 15 s. There shall be no sign of leakage at the closures.

7.3 The closure shown in Fig. 3 shall be tested by fitting them on the drum top and filling the drum to 'the capacity with dry sand. After closing the closure the drum shall then be hung upside down and shall be given light strokes from the above in the centre. The lever lid shall not come off, which will be noted by the fall of sand from the closures.



All dimensions are in millimetres.

FIG. 4 44 MM SCREWED CLOSURE

8 SAMPLING AND CRITERIA FOR CONFORMITY

Five samples for test shall be drawn at random from each lot of 1 000 or part thereof. The samples thus selected shall first be checked for dimensions, workmanship and finish and then tested with air pressure (*see 7.1 and 7.2*) or sand filling (*see 7.3*). Any closure failing in any one or more requirements shall be considered as defective.

9 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 product(s) may be marked with the Standard Mark.