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मानक

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Mazdoor Kisan Shakti Sangathan

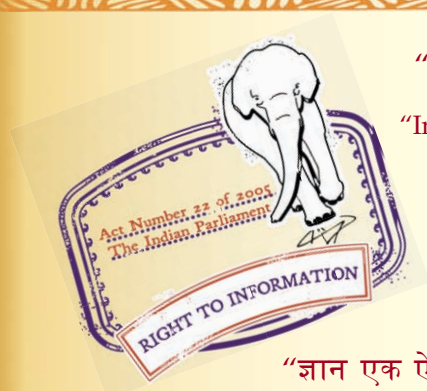
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

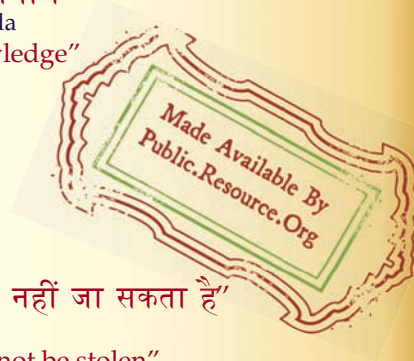
IS 2548-1 (1996): plastic seats and covers for water-closets, Part 1: Thermoset seats and covers [CED 3: Sanitary Appliances and Water Fittings]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
शौचकुंड के लिए प्लास्टिक
की पीठिका और ढक्कन — विशिष्टि

भाग 1 ताप दृढ़ पीठिका और ढक्कन

(पांचवां पुनरीक्षण)

Indian Standard

PLASTIC SEATS AND COVERS FOR
WATER-CLOSETS — SPECIFICATION

PART 1 THERMOSET SEATS AND COVERS

(*Fifth Revision*)

ICS 91.140.70; 83.140

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

FOREWORD

This Indian Standard (Part 1) (Fifth Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1963. The first revision of the standard was issued on an emergency basis in 1966 mainly to provide immediate alternative material available indigenously for component parts for which only non-ferrous and stainless steel had been specified earlier. The second revision was issued in 1967 after reviewing the emergency standard in the light of further experience. In the third revision in 1980, the seats and covers were classified on the basis of the type of material out of which they are moulded, namely, thermosetting and thermoplastic. Materials for hinging devices were also modified.

The Committee responsible for the fourth revision felt that the requirements for thermoset and thermoplastic seats and covers, earlier specified together, should be given in separate parts of the standard so that the Government Departments and other organized consumers, while ordering the seats and covers, could appropriately specify the IS No. with Part and could get the material of their choice. This standard (Part 1) deals with thermoset seats and covers while thermoplastic seats and covers have been dealt with in Part 2.

The Committee while preparing the fourth revision decided to include additional requirements and tests for better evaluation of the quality of the seats and covers. For thermoset seats and covers, dealt within this standard (Part 1), impact resistance tests have been included.

The Committee, while preparing this fifth revision, decided to harmonize dimensions with IS 2556 (Part 2) : 1994; to review and incorporate amendments issued to date and to include endurance tests for better evaluation of the quality of seats and covers with buffers.

For commercial and institutional use, such as hospital building and railways, where heavy and rough use of seats and covers is a common phenomenon, it is recommended that the underside of the seat should be flat with solid moulding.

In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from BS 1254 : 1981 'Specification for WC seats (plastics)', issued by the British Standards Institution.

The compositions of the technical committee responsible for the preparation of this standard is given at Annex M.

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, shall be rounded off in accordance with IS 2 : 1960 '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.

Indian Standard

PLASTIC SEATS AND COVERS FOR WATER-CLOSETS — SPECIFICATION

PART 1 THERMOSET SEATS AND COVERS

(Fifth Revision)

1 SCOPE

This standard (Part 1) covers requirements for thermoset seats and covers for water-closets.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this Standard:

IS No.	Title
1068 : 1993	Specifications for electroplated coatings of nickel plus chromium and copper plus nickel plus chromium (<i>third revision</i>)
1300 : 1994	Specification for phenolic moulding materials (<i>third revision</i>)
1868 : 1982	Specification for anodic coatings on aluminium and its alloys (<i>second revision</i>)
2556 (Part 2) : 1994	Specification for vitreous sanitary appliances (vitreous china) : Part 2 Specific requirement of wash-down water-closets (<i>fourth revision</i>)
3389 : 1994	Specification for urea-formaldehyde moulding materials (<i>first revision</i>)
4218 (Part 6) : 1978	ISO Metric screw threads : Part 6 Limits of sizes for commercial bolts and nuts (diameter range 1 to 52 mm) (<i>first revision</i>)

3 TYPES

The thermoset seats and covers shall be of the following two types :

- Type PF Moulded from phenolic plastics, and
- Type UF Moulded from urea-formaldehyde.

4 MATERIALS

4.1 Seats and Covers

4.1.1 Material for Type PF seats and covers shall be phenolic plastics conforming to Grade 2 or 3 of IS 1300 : 1994.

4.1.2 Material for Type UF seats and covers shall be urea-formaldehyde conforming to IS 3389:1994.

4.2 Hinging Device

Material for hinging device shall be one of the following:

- a) Bronze or brass with nickel chromium plating conforming to IS 1068 : 1993,
- b) Mild steel with nickel chromium plating conforming to IS 1068 : 1993,
- c) Aluminium alloy with anodic coating conforming to IS 1868 : 1982, and
- d) Suitable plastic (with reinforcement) (*see Note*).

NOTE — Plastics satisfying the following requirement are considered as suitable:

- a) Water absorption on immersion for 24 hours should not exceed 0.6 percent by mass,
- b) Elongation should be 15 percent, *Min*, and
- c) The material should be capable of withstanding temperature up to 55°C without undergoing deformation or softening and becoming unsatisfactory in performance.

5 MANUFACTURE

5.1 Shapes

5.1.1 Seat

The underside of the seats may be either flat or recessed. Where the underside is flat, the seat shall be a solid moulding, and where the underside is recessed, the section shall be not less than 3 mm at any point. The seats may be of the closed or open front pattern (*see Fig. 1*). The design shall provide for fixing of the seat on water-closet by hinging device. The seat shall be free from warpage.

5.1.2 Cover

The cover shall completely cover the aperture of the seat and shall be so designed that it is capable of being raised easily from the seat. The design shall enable it to be connected to the seat by hinging device. The cover shall not be less than 3 mm in thickness at any point. The cover shall be free from warpage.

5.2 Finish

The surfaces of the seats, covers and components shall be smooth, free from blisters and delamination and reasonably free from flowlines, contamination, streaking and unintended colour variation. They shall be capable of being easily cleaned and shall not be adversely affected by household cleaners. There shall be no sharp edges. The mouldings shall be non-absorptive and free from cracks, crevices and internal voids. The material shall be thoroughly cured.

5.3 Colour

The seats and covers shall be supplied in colours as agreed to between the manufacturer and the purchaser.

6 DIMENSIONS

6.1 Seat

The seat shall conform to the dimensions given in Table 1 and Fig. 1. In the case of open front design,

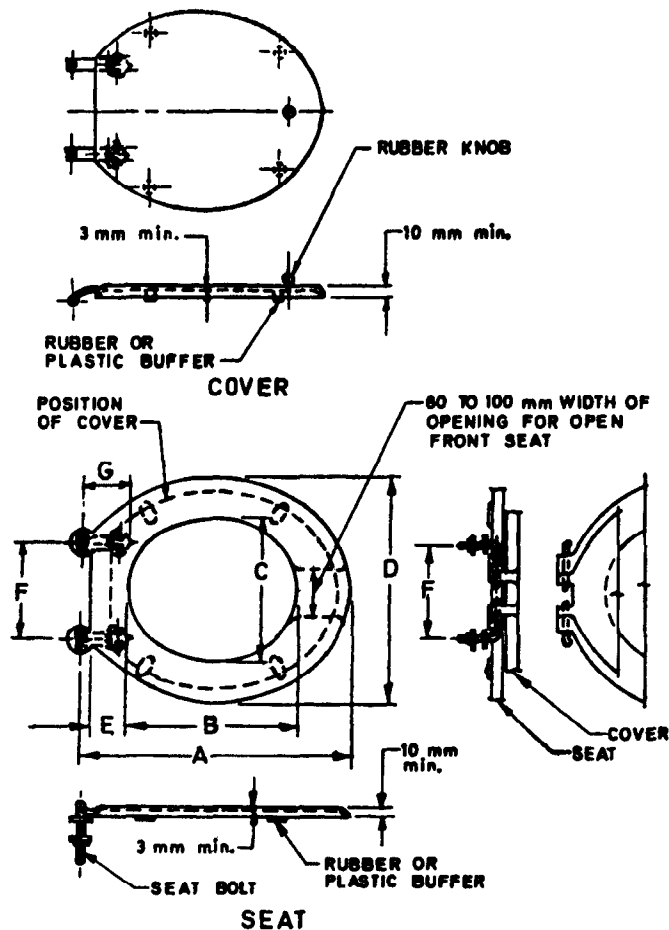
the seat, together with any reasonable extension of its outline in a plan view necessary to produce the outline plan shown in Fig. 1, shall conform to the dimensions given in Table 1.

6.2 Cover

The cover shall conform to the dimensions given in Table 1 and Fig. 1.

7 HINGING DEVICE

7.1 The manufacturer shall supply with each seat two bolts made of any one of the materials specified for hinging device (see 4.2). The bolts shall have a minimum shank length of 65 mm and a coarse thread of M8 size in accordance with IS 4218 (Part 6) : 1978 within 25 mm of the flange for fixing to the pan. Each bolt shall be provided with two suitably shaped washers of rubber or other equivalent material for adjusting the level of the



NOTE — Where so specified, rubber knob of 20 mm × 20 mm size of suitable shape may be provided on top of the cover for lifting purposes.

FIG. 1 PLASTIC SEAT AND COVER

Table 1 Dimensions of Seats And Covers

(Clauses 6.1 and 6.2 and Fig. 1)

All dimensions in millimetres.

Sl No.	Description	Dimensions	
		Min	Max
(1)	(2)	(3)	(4)
i)	Distance from centre line of hinge bolts to extreme edge of rim at front, <i>A</i>	445	475
ii)	Length of opening at longest point, <i>B</i>	250	290
iii)	Width of opening at widest point, <i>C</i>	215	240
iv)	Overall width at widest point, <i>D</i>	380	—
v)	Distance between inner and outer rims, <i>E</i>	55	—
vi)	Centre-to-centre distance of seat bolt holes, <i>F</i>	145	175
vii)	Distance from centre line of hinge bolts to inner rim of seat at the back, <i>G</i>	85	—
viii)	Thickness of seat at thinnest point	3	—
ix)	Thickness of cover at thinnest point	3	—

NOTE — Some hinging devices are made so as to provide adjustment in the longitudinal direction. This is not precluded by these figures.

seat when securing it to the pan. The maximum external measurement of any such washers fixed on the underside of the pan shall be not greater than 25 mm. In addition, one washer made of any other material specified for bolts and not exceeding 25 mm in diameter shall be provided with each bolt.

7.1.1 Alternative hinging device of suitable design as agreed to between the manufacturer and the purchaser may also be used for fixing.

7.1.2 Hinging pins, where used, shall be not less than 5 mm in diameter.

7.1.3 The hinging device shall not be attached by screws inserted direct into the plastic material of the seat or cover.

8 BUFFERS

8.1 Each seat shall be provided with not less than three rubber or plastic buffers of size 25 mm × 40 mm × 10 mm for closed front seats and not less than 4 for open front seats, which shall be securely fixed to the underside of the seat.

NOTES

1 The dimension '10 mm' refers to the clear projection from the base.

2 Buffer size specified above is the minimum size. Buffers larger than the size specified shall be permitted with a provision that they do not protrude beyond the seat.

8.1.1 The buffers shall be so located that the seat is properly supported by the top surface of the water-closet. Metal fastenings of the buffers, where used, shall be so recessed that they do not come in contact with the rim of the water-closet.

8.2 Each cover shall be fitted with the same number of buffers as provided for the seat (see 8.1). The buffers below the seat and cover shall be placed vertically over each other.

9 TEST REQUIREMENTS

9.1 Strength Requirements for Seats

The seats shall withstand, without permanent distortion of the seat or the hinge fittings or damage to any finish, a load of 1150 N applied in the manner prescribed in Annex A for a period of 30 minutes.

9.2 Impact Resistance

9.2.1 Seat

When tested in accordance with Annex B, the seat, buffers and hinges shall not show any visible damage.

9.2.2 Cover

When tested in accordance with Annex C, the cover, buffers and hinges shall not show any visible damage.

9.3 Water Absorption

When tested according to Annex D, the increase in mass shall be 2.26 percent, *Max* and on visual inspection after immersion, it shall show no impairment in respect of the characteristics specified under 5.2.

9.4 Rigidity

9.4.1 Seat

When tested in accordance with Annex E, the maximum deflection shall be 12.5 mm and, on

visual inspection after the load is removed, the seats shall not show any fracture.

9.4.2 Cover

When tested in accordance with Annex F, the maximum deflection shall be 25 mm, and on visual inspection after the load is removed, the covers shall not show any fracture. No part of the edge of the cover shall be pushed through the seat opening.

9.4.3 When tested in accordance with Annex G, the maximum distortion shall be 3 mm.

9.5 Staining by Seats and Covers

When tested in accordance with Annex H, there shall not be any visible colour transfer to the white cloth.

9.6 Staining and/or Other Surface Deterioration of Seats and Covers

When tested in accordance with Annex J, there shall not be any changes of colour or other adverse change in surface characteristics.

9.7 Endurance Test for Seat, Covers and Buffers

When tested in accordance with Annex K, neither seat, cover or buffer should be damaged nor dislocated. This is a type test to be done once in six months.

10 SUPPLY CONDITIONS

10.1 While ordering or supplying, the purchaser and the supplier/manufacturer shall clearly identify in the order or in the supply document, the type of the seats and covers to be supplied/being supplied (see 3.1) along with the material of the hinging device.

10.2 In addition to that given in 10.1, while making an enquiry of placing an order, the purchaser shall provide the information regarding the required colour (see 5.3).

11 INSPECTION

The purchaser or his representative, where agreed to between the supplier/manufacturer and the purchaser, shall be granted facilities for the purpose of inspection of the finished goods prior to delivery.

12 REJECTION

The purchaser shall have the option of rejecting any article purporting to be supplied to this standard if it fails to meet any of the requirements laid down in this standard.

13 SAMPLING

13.1 The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in Annex L.

14 MARKING

14.1 Each seat and cover manufactured in accordance with this standard shall be clearly and indelibly marked with the name or identification mark of the manufacturer and type (see 3.1). This marking shall be on the underside of the seats and covers and shall be capable of being seen even after these are installed. The material used for hinging device shall be indicated in the label/packing slip attached to the seats and covers.

14.2 Informative Labelling

14.2.1 Informative labelling may be provided for each seat and cover assembly.

14.2.2 Where informative labelling is required, each seat and cover assembly shall be supplied with a self-adhesive label which shall commence with the following notice prominently displayed:

NOTICE TO BUILDER: PLEASE LEAVE THIS LABEL IN POSITION FOR THE USER TO READ.

14.2.3 The label may contain the following information:

- a) Which cleanser may be used on the seat and cover,
- b) Which polishes may be used on the seat and cover, and
- c) The manner in which the cleansers and polishes should be used.

14.2.3.1 The label may also state the following:

'Avoid abrasives and scouring powder for cleaning and, in particular, avoid cleansers used to clean the water-closet'.

'Lighted cigarettes should not be placed on the seat or cover'

14.3 BIS Certification Marking

Each seat and cover may also be marked with the Standard Mark.

14.3.1 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. Detail 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.

ANNEX A*(Clause 9.1)***STRENGTH TEST FOR SEATS****A-1 APPARATUS**

A-1.1 The seat is to be tested affixed to a platform by its hinges after removing the cover.

A-1.2 The width of the platform shall allow sufficient over hang of the sides of the seat to enable the test load to be properly applied. The seat shall be provided with rubber buffers of the same type and affixed in the same manner as when in use.

A-1.3 An arrangement for testing is shown in Fig.2. A water-closet may be used to support the seat for testing if it is raised to a sufficient height to allow proper application of the test load.

A-2 PROCEDURE

A-2.1 Apply the test load to the top of the seat through a 75 mm square softwood pad, 25 mm

thick, by suspending mass from the frame. The necessary mass shall be attached to the frame in increments of 10 kg or 20 kg.

A-2.2 Apply the load to the front of the seat (Position 1, Fig. 2); the sides of the seat (Positions 2-2, Fig. 2) and to the back of the seat between hinges (Position 3, Fig. 2) Care shall be taken in the last position to see that the pad transmits the full load to the seat and does not rest on any hinge pin.

A-3 REPORTING

Inspect the seat, buffers and hinges and note any damage that has occurred.

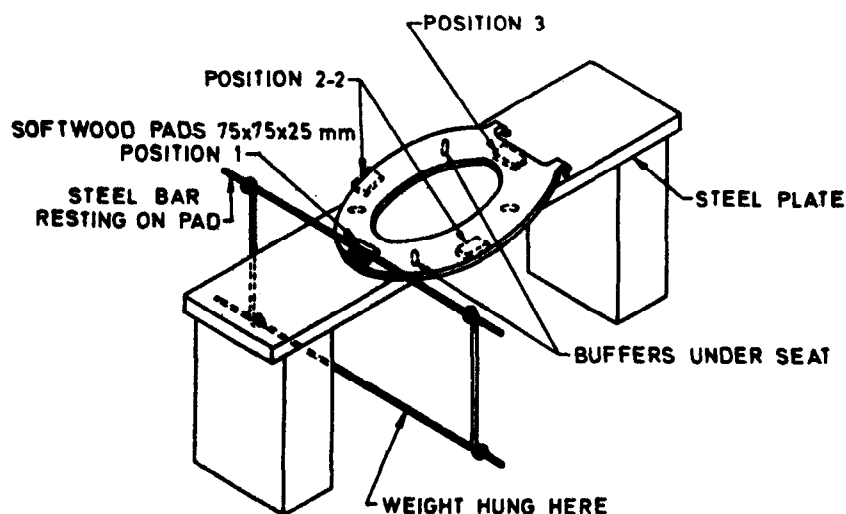


FIG. 2 ARRANGEMENT FOR STRENGTH TESTING OF SEAT

ANNEX B*(Clause 9.2.1)***TEST FOR IMPACT RESISTANCE OF SEATS****B-1 OBJECT**

The object of the impact test is to ensure:

- a) that the seat is strong enough to withstand both an impact load, when in the raised position, typical of that which it might

receive under normal conditions of use, and the subsequent impact load as it strikes the water-closet to which it is secured; and

- b) that the hinges and buffers of the seat are robust enough to withstand the loads arising from the impacts.

B-2 APPARATUS

B-2.1 Water-Closet — complying with the requirements of IS 2556 (Part 2) : 1994.

B-2.2 Frame — capable of supporting:

- the seat, when it is attached to the water-closet, in a vertical position, but allowing it to fall freely when struck by a pendulum; and
- a pendulum on a pivot and at such a height that, when released from the horizontal, it will swing downwards through an arc of 90° so that the centre of its disc strikes the raised seat centrally at the extreme point.

NOTE — A mechanical means of releasing the pendulum may be provided.

B-2.3 Pendulum — 380 mm long from the centre of its pivot to the centre of the striking disc, and

comprising a rod of mass not exceeding 0.23 kg and a rigid 150 mm diameter disc faced with 3 mm thick rubber of hardness 55 ± 5 IRHD. The total mass of the pendulum shall be 4.1 kg.

B-2.4 The set-up of apparatus is shown in Fig. 3.

B-3 PROCEDURE

Assemble the seat to the water-closet and place the assembly in the frame. Raise the seat to the vertical position and support it so that after being struck by the pendulum it is free to fall. Raise the pendulum to the horizontal and release it so that it swings downwards to strike the raised seat centrally at the extreme point.

B-4 REPORTING

Inspect the seat, buffers and hinges and note any damage that has occurred.

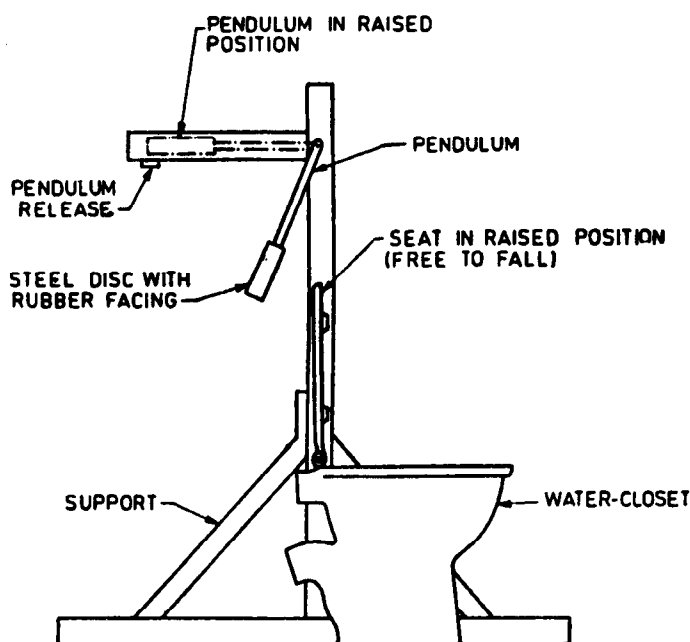


FIG. 3 ARRANGEMENT FOR TESTING IMPACT RESISTANCE OF SEATS

ANNEX C

(Clause 9.2.2)

TEST FOR IMPACT RESISTANCE OF COVERS

C-1 OBJECT

The object of the impact test is to ensure:

- that the cover is strong enough to withstand both an impact load, when in the raised position, typical of that which it might

receive under normal conditions of use, and the subsequent impact load as it strikes the seat to which it is secured; and

- that the hinges and buffers of the cover are robust enough to withstand the loads arising from the impacts.

C-2 APPARATUS

C-2.1 Water-Closet — complying with the requirements of IS 2556 (Part 2) : 1994.

C-2.2 Seat — complying with the requirements of this standard.

C-2.3 Frame — capable of supporting:

- the cover, when it is attached to the water-closet, in a vertical position, but allowing it to fall freely when struck by a pendulum; and
- a pendulum on a pivot and at such a height that, when released from the horizontal, it will swing downwards through an arc of 90° so that the centre of its disc strikes the raised cover centrally at the extreme point.

NOTE — A mechanical means of releasing the pendulum may be provided.

C-2.4 Pendulum — 380 mm long from the centre of its pivot to the centre of the striking disc, and

comprising a rod of mass not exceeding 0.23 kg and a rigid 150 mm diameter disc faced with 3 mm thick rubber of hardness 55 ± 5 IRHD. The total mass of the pendulum shall be 4.1 kg.

C-2.5 The set-up of apparatus is shown in Fig. 4.

C-3 PROCEDURE

Assemble the cover to the water-closet and place the assembly in the frame. Raise the cover to the vertical position and support it so that after being struck by the pendulum it is free to fall. Raise the pendulum to the horizontal and release it so that it swings downwards to strike the raised cover centrally at the extreme point.

C-4 REPORTING

Inspect the cover, buffers and hinges and note any damage that has occurred.

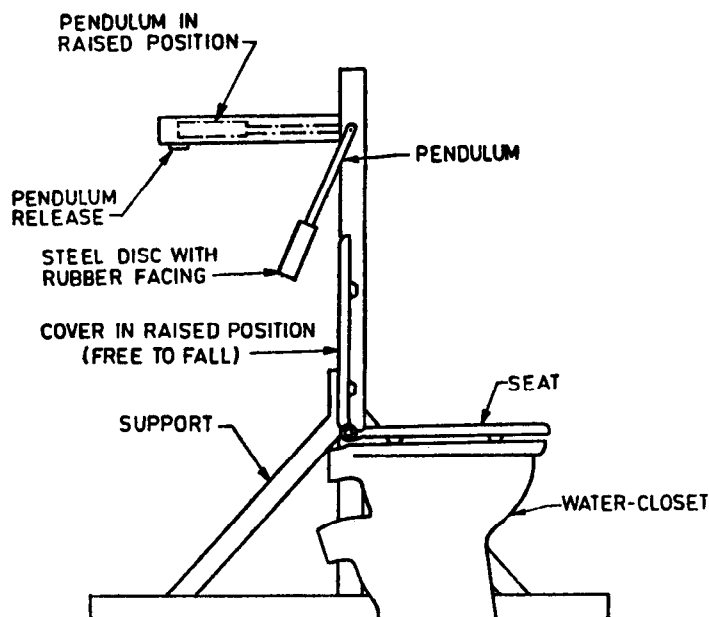


FIG. 4 ARRANGEMENT FOR TESTING IMPACT RESISTANCE OF COVERS

ANNEX D

(Clause 9.3)

TEST FOR WATER ABSORPTION OF SEATS AND COVERS**D-1 OBJECT**

The object of the water absorption test is to ensure that the seat or cover is durable and hygienic.

D-2 APPARATUS

D-2.1 Balance — to weigh the seat or cover to an accuracy of 0.1 g.

D-2.2 Vessel — containing enough water so that the seat or cover can be submerged in it.

D-3 PROCEDURE

The samples shall be conditioned at ambient temperature and humidity for at least 24 hours after manufacture. Weigh the seat or cover (M_1). Immerse the whole of the seat or cover in water for 24 hours. Remove the seat or cover from the water and immediately blot off the surface water and weigh the specimen again (M_2).

D-4 REPORTING

Record the values M_1 and M_2 to the nearest 0.1 g. Calculate the percentage increase in mass, to two decimal places, from the following equation:

$$\text{Percentage increase} = \frac{100 (M_2 - M_1)}{M_1}$$

Note any change in any surface characteristic which has occurred.

ANNEX E

(Clause 9.4.1)

TEST FOR RIGIDITY OF SEATS**E-1 OBJECT**

The object of the rigidity test is to ensure that the seat, when supported only by its hinges and buffers or distance pieces, is sufficiently rigid both to support the weight of the user and to distribute that weight uniformly.

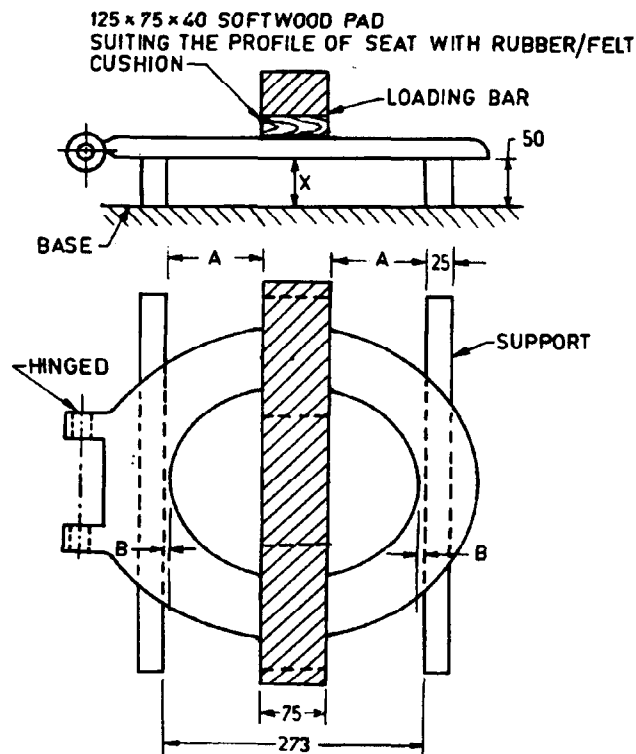
E-2 APPARATUS**E-2.1 Firm Flat Base**

E-2.2 Metal Supports — two, each 50 mm × 25 mm × 500 mm.

E-2.3 Metal Loading Bar — 75 mm wide, of a length greater than the width of the seat and of mass 45 kg. Alternatively a rigid bar of 75 mm width and length greater than the width of the seat with a total symmetric load of 45 kg may be used.

E-2.4 Scale — capable of measuring to 0.5 mm.

E-2.5 The set-up of apparatus is shown in Fig. 5.

**NOTES**

1 Dimensions A are equal.

2 Dimensions B are equal.

All dimensions in millimetres.

Fig. 5 ARRANGEMENT FOR TESTING RIGIDITY OF SEATS

E-3 PROCEDURE

The specimen shall be conditioned at ambient temperature and humidity for at least 24 hours after manufacture and lay it on the supports as shown in Fig. 5. Measure the height X_1 from the base to underside of the seat at a point mid-way between the supports to the nearest 0.5 mm. Place the loading bar on the seat as shown in Fig. 5. After

10 minutes, measure the height X_2 from the base to the underside of the seat at a point mid-way between the supports to the nearest 0.5 mm.

E-4 REPORTING

Calculate the deflection as $X_1 - X_2$. Inspect the seat to see if any fracture has occurred.

ANNEX F

(Clause 9.4.2)

TEST FOR RIGIDITY OF COVERS

F-1 OBJECT

The object of the rigidity test is to ensure that if the cover, when closed, is sat upon, it does not fracture, neither its edges are pushed through the opening in the seat.

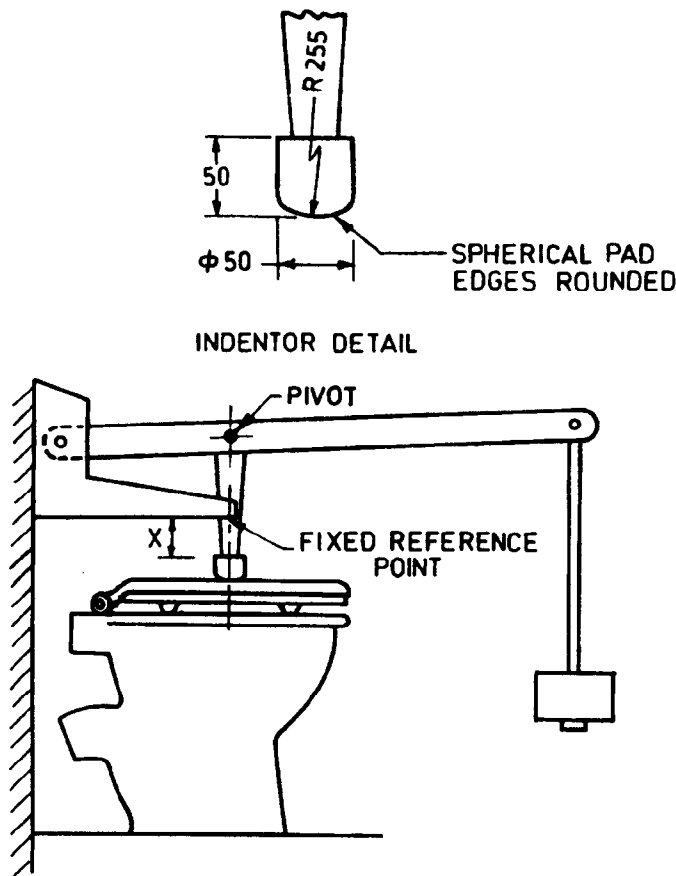
F-2 APPARATUS

F-2.1 Water-Closet — complying with the requirements of IS 2556 (Part 2) : 1994.

F-2.2 Seat — with which the cover is to be supplied.

F-2.3 Scale — capable of measuring to 1 mm.

F-2.4 A Means of Applying Load — capable of applying a load equivalent to a weight of 65 kg (650 N approximately) to the specimen cover through an indenter whose dimensions are given in Fig. 6.



All dimensions in millimetres.

FIG. 6 ARRANGEMENT FOR TESTING RIGIDITY OF COVERS

F-2.5 Fixed Reference Point

Near the top of the indenter when it is resting on the cover.

F-3 PROCEDURE

F-3.1 Assemble the cover to the seat, and the seat to the water-closet. Place the water-closet, seat and cover under the loading apparatus with the cover closed, so that the indenter will rest on the cover at a point corresponding to the centre of the opening in the seat. Lightly rest the unloaded indenter on the cover and measure the vertical distance X_1 from the fixed reference point to the top of the spherical part of the indenter to the nearest 1 mm. Apply an effective load as given in F-2.4 to the indenter

resting on the cover. After 10 minutes measure the vertical distance X_2 from the fixed reference point to the top of the spherical part of the indenter to the nearest 1 mm.

F-3.2 Repeat the test a second time, placing the indenter at some other point of the cover.

F-4 REPORTING

Calculate the deflection as $X_2 - X_1$. Record the deflection as the greater of the deflections measured in the two tests. Examine the cover after each deflection test to see if any part of the edge of the cover has been forced through the opening in the seat, and to see if any fracture has occurred.

ANNEX G

(Clause 9.4.3)

TEST FOR DISTORTION OF SEATS AND COVERS

G-1 OBJECT

The object of the test is to ensure that when the seat and cover are correctly mounted on the hinging device supplied with them, the seat lies reasonably flat upon the water-closet, the cover lies reasonably flat upon seat and no unsightly gaps occur in the assembly.

G-2 APPARATUS

G-2.1 Rigid Flat Base — To which the hinging device supplied with seat and cover may be attached.

G-2.2 Scale — Capable of measuring to 1 mm.

G-3 PROCEDURE

Attach the seat to the base and, if possible, adjust the hinges to achieve a minimum gap between the underside of the buffers and the base. Inspect the buffers to see if there is a gap between the underside of the buffers and the base. Measure any gap to the nearest 1 mm.

G-4 REPORTING

Record the measurements.

ANNEX H

(Clause 9.5)

TEST FOR STAINING BY SEATS AND COVERS

H-1 OBJECT

The object of the test is to ensure that the material of the seat and cover does not stain the user.

H-2 PROCEDURE

Ensure that the seat or cover is dry. Rub the seat

or cover rapidly with a moist white cotton cloth for a period of not less than 5 seconds.

H-3 REPORTING

Examine the cloth to see if any colour has been transferred to it.

ANNEX J*(Clause 9.6)***TEST FOR STAINING AND/OR OTHER SURFACE DETERIORATION OF SEATS AND COVERS****J-1 OBJECT**

The object of the test is to ensure that the cleaners and polishers described on the informative label attached to the seat or cover (*see 14.2*) do not, when used in the manner described on the label, stain the seat or cover and thereby spoil their appearance.

J-2 PROCEDURE

J-2.1 Apply one of the cleansers specified on the informative label [*see 14.2.3(a)*], by the appropriate method described on the label [*see 14.2.3(c)*], to half the area of the seat and half the area of the cover. Allow the treated seat and cover to stand for 1-1/4 hours. Compare the treated and untreated areas and note any change in colour or in any other surface characteristic.

J-2.2 Repeat the test five times. Treat the same area each time.

J-2.3 After 24 hours, ensure that the seat or cover is dry. Apply one of the polishes specified on the informative label [*see 14.2.3 (b)*], by the appropriate method described on the label [*see 14.2.3 (c)*], to half the area of the seat and the cover that was treated with cleanser. Allow the treated seat and cover to stand for 1-1/2 hours. Compare the areas treated with cleanser and polish with the untreated areas and note any change in colour or in any other surface characteristic.

J-2.4 Repeat the test with the polish five times. Treat the same area each time.

J-2.5 For all the combinations of cleansers and polishes specified on the informative label, repeat the complete test using different seat and cover for each combination.

J-3 REPORTING

Note any change in colour or in any other surface characteristic together with the stage of the treatment at which it took place.

ANNEX K*(Clause 9.7)***ENDURANCE TEST FOR SEAT, COVER AND BUFFERS****K-1 OBJECT**

The object of the test is to ensure that the seats, cover and buffers are robust enough to withstand loads arising from normal conditions of use.

K-2 APPARATUS

Water-closet complying with the requirements of IS 2556 (Part 2) : 1994.

K-3 PROCEDURE

Assemble the seat and cover to the water-closet with hinging device supplied. Raise the seat and cover to the vertical position and allow it to fall freely on to the water-closet, continuously, 300 times.

K-4 REPORTING

Inspect the seat, cover and buffers for any damage or dislocation.

ANNEX L*(Clause 13.1)***SAMPLING AND CRITERIA FOR CONFORMITY****L-1 SAMPLING****L-1.1 Lot**

In any consignment, all the seats and covers from the same batch of manufacture shall be grouped together to constitute a lot.

L-1.2 The number of seats and covers to be selected from a lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 2.

Table 2 Sample Size and Permissible Number of Defectives
(Clauses L-1.2, L-2.2 and L-3.1)

Lot Size <i>N</i> (1)	Sample Size <i>n</i> (2)	Permissible No. of Defectives (3)	Sub-sample Size (4)
Up to 100	15	1	3
101 to 200	20	2	4
201 to 300	30	3	5
301 to 500	40	3	7
501 to 800	55	4	8
801 and above	75	6	10

L-1.2.1 These seats and covers shall be selected at random. In order to ensure randomness of selection, the following procedure may be adopted:

Starting from any seat and cover in the lot, count them as 1, 2, 3, up to r in a systematic manner, where r is the integral part of N/n , N being the lot size and n the sample size. Every r th seat and cover thus counted shall be separated until the requisite number is obtained.

L-2 NUMBER OF TESTS

L-2.1 All the seats and covers selected as in L-1.2

shall be examined for their conformity with the requirements of 5 to 8.

L-2.2 The number of seats and covers to be tested as mentioned in 9 shall be in accordance with col 4 of Table 2. These seats and covers shall be selected out of those already selected as in L-1.2.

L-3 CRITERIA FOR CONFORMITY

L-3.0 The lot shall be considered as conforming to the requirements of this specification if the conditions in L-3.1 and L-3.2 are satisfied.

L-3.1 The number of seats and covers failing to satisfy one or more of the requirements specified in 5 to 8 shall not exceed the corresponding number given in col 3 of Table 2.

L-3.2 All the seats and covers tested as in 9 shall satisfy the requirements of the tests. In case there is only one failure, twice the number of seats/covers tested shall be selected and subjected to the tests mentioned in 9. All the seats/covers so tested shall satisfy the requirements of the tests.

ANNEX M

(Foreword)

COMMITTEE COMPOSITION

Sanitary Appliances and Water Fittings Sectional Committee, CED 3

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DR T. K. DAN	Central Glass and Ceramic Research Institute (CSIR), Calcutta
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