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Assistive products —Raised toilet seats

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

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Assistive products—Raised toilet seats

1 Scope

This Japanese Industrial Standard specifies the toilet seat with adjustable height seat surface to assist standing and sitting, and the toilet seat having the hoisting and lowering mechanism to assist standing and sitting (hereafter referred to as “raised toilet seats”). However, it excludes the Japanese squat-sitting conversion type toilet seat and the toilet whose bowl itself is hoisted and lowered.

2 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS K 6253-3 *Rubber, vulcanized or thermoplastic—Determination of hardness—Part 3: Durometer method*

JIS T 0102 *Glossary of terms used in assistive products for persons with disabilities*

3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in JIS T 0102 and the following apply.

3.1 toilet seat

component used as the surface that supports a user's body and the working force mainly at the time of excretion

3.2 top-mounted type

raised toilet seat that is placed on a toilet seat, or directly on a toilet bowl when there is no toilet seat

3.3 insertion type

raised toilet seat that is inserted between a toilet seat and a toilet bowl

3.4 adjustable height type

raised toilet seat that is used by hoisting and lowering

3.5 opening

opening part of a raised toilet seat or a toilet seat

3.6 toilet seat installation part

portion on which an adjustable height type toilet seat is mounted

4. Name of each part

The name of each part of a raised toilet seat shall be as follows (see figure 1).

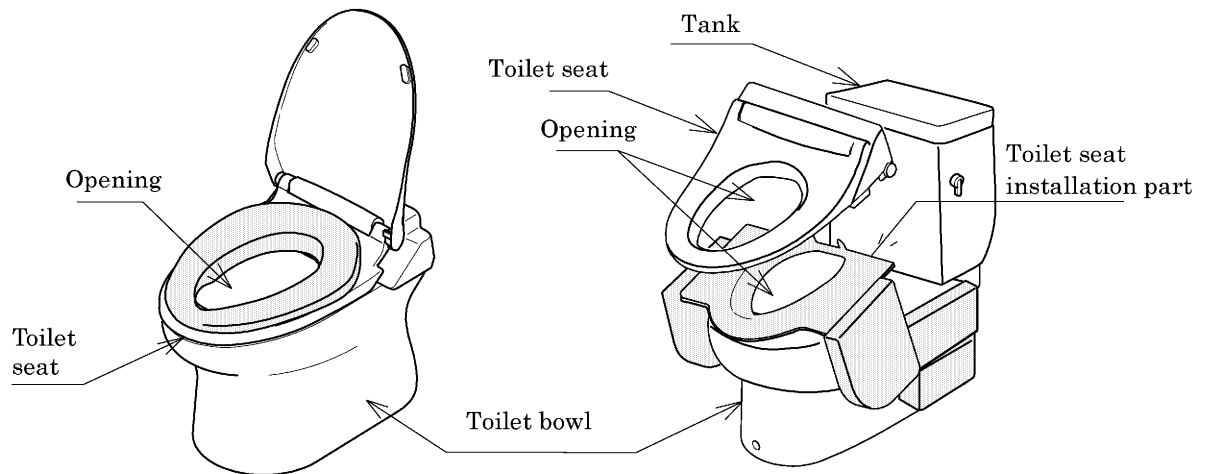


Figure 1 Name of each part

5 Types

The types of raised toilet seat shall be as follows (see figure 2).

- a) Top-mounted type
- b) Insertion type
- c) Adjustable height type

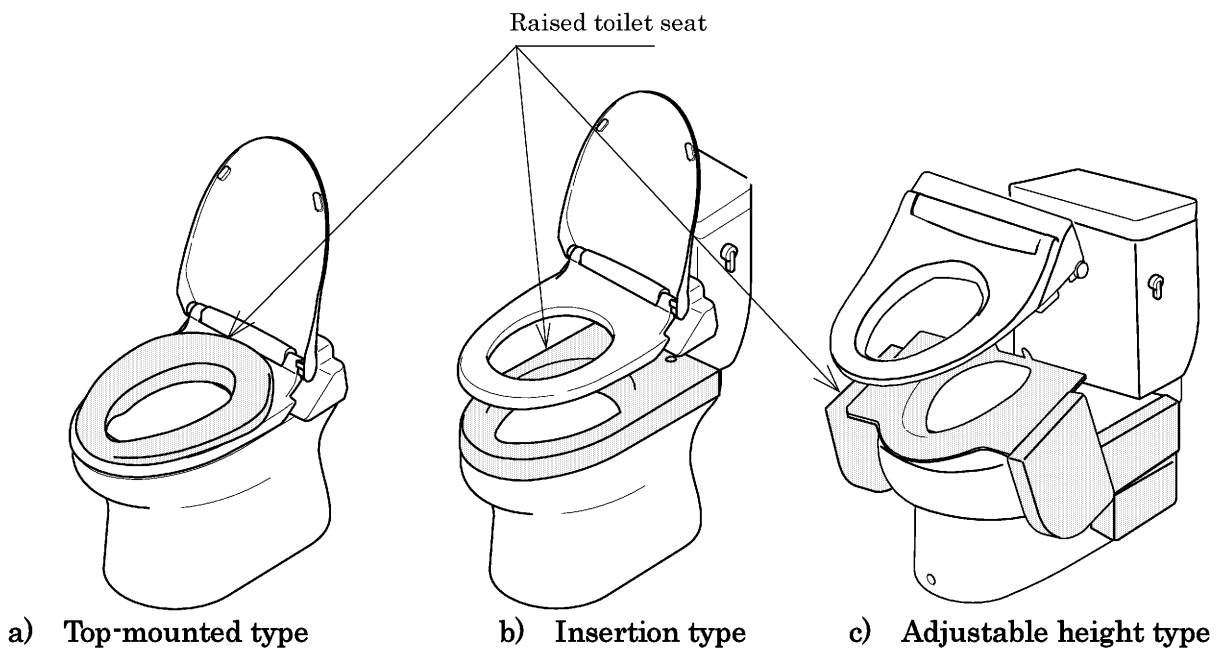


Figure 2 Types of raised toilet seat

6 General requirements

6.1 Risk management-based design

The risk management-based design shall be performed about a risk of a hand finger and a neck being trapped in a gap. Its procedures and results shall be documented and saved by the manufacturer. The matters illustrated as the related factors in Annex A should be considered in design.

6.2 Appearance

The appearance shall be as follows.

- a) The appearance shall be finished well and free from any defects, such as cracks, distortion, and disjointed parts that affect functions adversely.
- b) The tips of external bolts/nuts, etc. and any portions that may touch a human body shall be free from protrusion, sharp edge, burr, etc. that may cause injury in case of touching.
- c) The face side of a painted surface shall be uniform in gloss and colour tone, and free from coating unevenness, drip, etc.

6.3 Construction

The construction shall be as follows. If the item does not correspond to any components or parts, then it shall not be applied.

- a) Junction, assembly, etc. of each part shall be good and free from looseness, backlash, deformation, etc.
- b) The construction shall be such that when a height control mechanism is provided, height control is easily performed and looseness does not easily occur during use.
- c) The distance to prevent a finger from being trapped shall be less than 5 mm or more than 25 mm. If an inevitable risk is caused by an opening size and a gap between stationary parts, then appropriate warning or instruction about safe operation of the device shall be described on a product or in an operation manual so that the device may meet the usual intended use.
- d) The accessories shall be constructed so as not to compromise the safety on use.
- e) The device using commercial power shall be provided with overload protection equipment, such as a current fuse for intercepting overcurrent in a power supply circuit. The device shall be constructed to be grounded with a grounding conductor or a grounding terminal, except devices with double-insulated construction.
- f) The hoist unit shall be a hold-to-run control device¹⁾ unless it is provided with an overload protector.
- g) The control force of a control switch shall be 5 N or less.

Note ¹⁾ The control device that maintains rise and fall only when manual control is working, and that returns automatically to "stop" or "off" when manual control is canceled.

7 Performances

7.1 Performance of top-mounted type

The performance of top-mounted type shall be as given in table 1.

Table 1 Performance of top-mounted type

Item	Performance	Test item
Holding force	It shall not drop out and fall.	9.1.1
Static strength	It shall be free from breakage, deformation, etc. that affect the use adversely.	9.1.2
Impact resistance		9.1.3
Durability		9.1.4

7.2 Performance of insertion type

The performance of insertion type shall be as given in table 2.

Table 2 Performance of insertion type

Item	Performance	Test item
Holding force	It shall not drop out and fall. However, this does not apply to a product to be constructed.	9.2.1
Static strength	It shall be free from breakage, deformation, etc. that affect the use adversely.	9.2.2
Impact resistance		9.2.3
Durability		9.2.4

7.3 Performance of adjustable height type

The performance of adjustable height type shall be as given in table 3.

Table 3 Performance of adjustable height type

Item	Performance	Test item
Stability	It shall not fall. However, this does not apply to a product to be constructed.	9.3.1
Static strength	It shall be free from breakage, deformation, etc. that affect the use adversely.	9.3.2
Impact resistance		9.3.3
Durability		9.3.4

8 Test conditions

8.1 General

The test conditions shall be as follows.

- The test shall be done at room temperature of $20\text{ }^{\circ}\text{C} \pm 15\text{ }^{\circ}\text{C}$.
- Each test shall be done on a test specimen that is adjusted to the most severe condition.
- A toilet seat with a lid may be tested with the lid removed.

8.2 Sand bags

Sand bags shall be as follows.

- a) **Sand bag for holding force** A cylindrical bag of a bottom diameter of 300 mm and mass of 60 kg $\pm$ 0.5 kg
- b) **Sand bag for impact resistance** A cylindrical bag of a bottom diameter of 300 mm and mass of 25 kg $\pm$ 0.5 kg

8.3 Weights

Weights shall be as follows.

- a) **Cylinder weight** Weight of 25 kg and 35 kg in mass
- b) **Weight for fall prevention** Weight of about 100 kg in mass

8.4 Plates

Plates shall be as follows.

- a) **Plate for load** A circular plate of 100 mm in diameter
- b) **Plate covering the entire surface** A flat plate with the length and width that are equal to the outside dimension of a specimen toilet seat surface, and that covers its entire surface.

8.5 Test board

Test boards shall be as follows.

- a) **Test board A** A table of suitable size to which the toilet seat specified by the manufacturer or vendor is mounted, or a toilet bowl
- b) **Test board B** A toilet bowl specified by the manufacturer or vendor

9 Test methods

9.1 Top-mounted type

9.1.1 Holding force test

9.1.1.1 Holding force test of main body

The specimen under working condition shall be mounted on test board A specified in a) of 8.5 by the method specified by the manufacturer or vendor. Next, the sand bag for holding force specified in a) of 8.2 shall be placed on a specimen. A horizontal force of 180 N shall be applied to the side of the sand bag for holding force. Visual inspection shall be made of dropout of a raised toilet seat, fall, deformation and abnormality that affect the use adversely (see figure 3).

The horizontal force shall be directed either to front/left or to front/right of a specimen. The load position shall be almost the centre of the bag for holding force up to a height of 50 mm from its bottom.

If a sand bag falls through an opening, the plate covering the entire toilet seat surface specified in b) of 8.4 may be placed on a raised toilet seat and a test may be done.

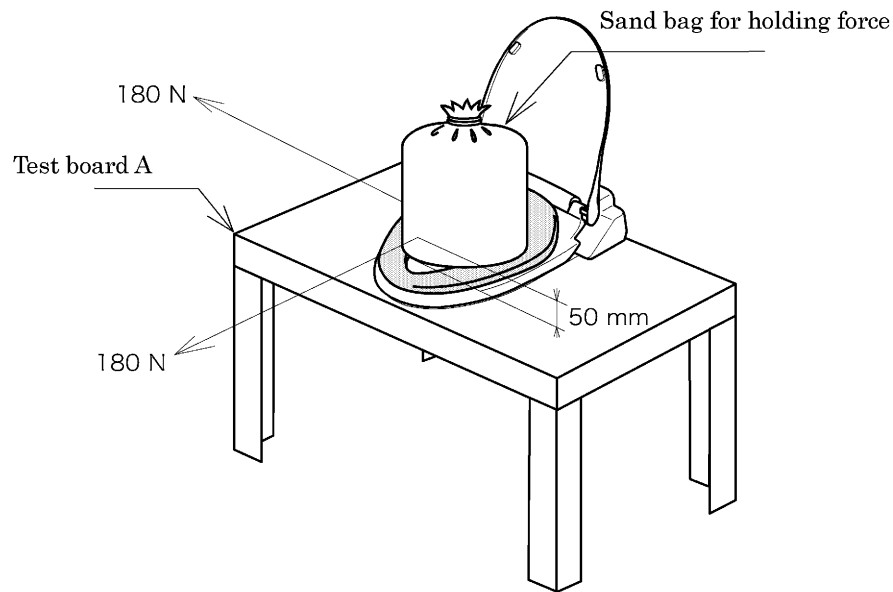


Figure 3 Holding force test of top-mounted type

9.1.1.2 Holding force test of armrest (when an armrest is attached)

The specimen under working condition shall be mounted on test board A specified in a) of 8.5 by the method specified by the manufacturer or vendor. Next, the plate covering the entire surface specified in b) of 8.4 may be placed on a specimen toilet seat surface. The cylindrical weight of 25 kg in mass specified in a) of 8.3 shall be placed 100 mm sideways apart from the opening centre position of the plate covering the entire toilet seat surface. The cylindrical weight of 35 kg in mass specified in a) of 8.3 shall be placed on the centre of an armrest that is ipsilateral to the weight. A horizontal force of 60 N shall be applied to that position outward. Visual inspection shall be made of deformation and abnormality that affect the use adversely such as dropout of an armrest and fall of a main body (see figure 4).

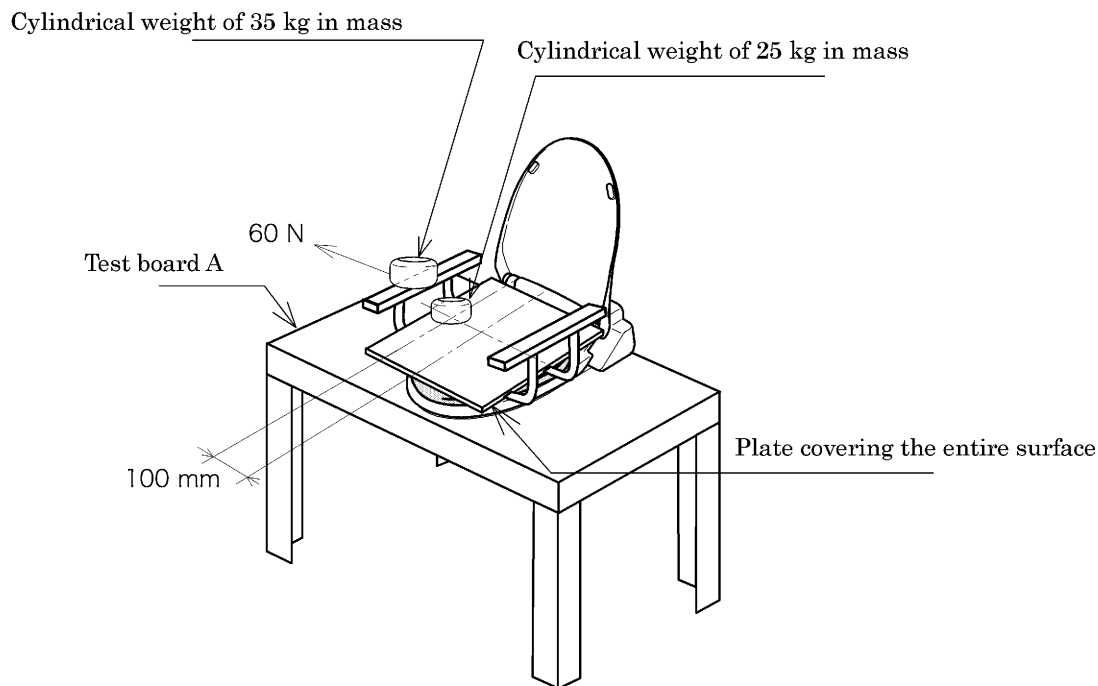


Figure 4 Holding force test of top-mounted type armrest

9.1.2 Static strength test

9.1.2.1 Static strength test of toilet seat surface

The specimen under working condition shall be mounted on test board A specified in a) of 8.5 in the method specified by the manufacturer or vendor. Next, the plate covering the entire surface specified in b) of 8.4 shall be placed on the specimen. A vertical force of 1 300 N including the mass of plate shall be applied 10 times to the centre of the plate covering the entire toilet seat surface. Then, the load shall be removed. Inspection shall be made of breakage, deformation etc. that affect the use adversely, for each part. The vertical load shall be maintained each time for at least 10 s (see figure 5).

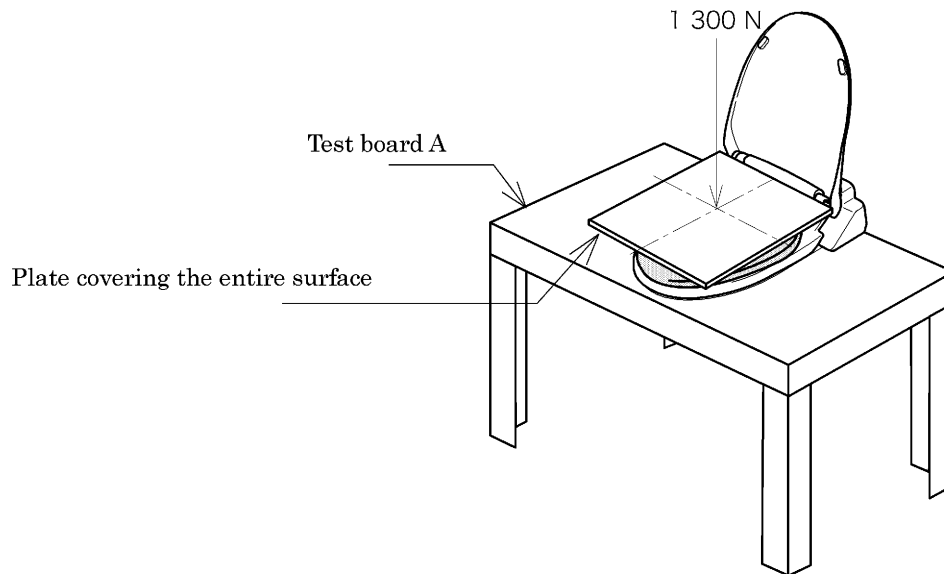


Figure 5 Static strength test of top-mounted type

9.1.2.2 Armrest vertical load test (when an armrest is attached)

The specimen under working condition shall be mounted on test board A specified in a) of 8.5 by the method specified by the manufacturer or vendor. Next, a vertical force of 800 N including the mass of plate for load shall be applied 10 times to the most breakable position of an armrest if known. If the most breakable position is difficult to identify, then the force shall be applied to the centre of an armrest through the plate for load specified in a) of 8.4. Then, the load shall be removed. Inspection shall be made of breakage, deformation, etc. that affect the use adversely, for each part. The vertical load shall be maintained each time for at least 10 s (see figure 6).

The plate for load shall not be positioned ²⁾ separately from an armrest end at the time of load. If a specimen is likely to fall, then the fall prevention measures may be taken [by placing the weight for fall prevention specified in b) of 8.3, or by fixing the main body] by the method that does not affect the test result, and the test may be done.

Note ²⁾ The plate end shall not be positioned separately, namely, shall not protrude from an armrest end.