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**Electrically operated adjustable bed
for home use**

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Foreword

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

Consequently **JIS T 9254** : 2005 is replaced with this Standard.

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Electrically operated adjustable bed for home use

1 Scope

This Japanese Industrial Standard specifies the bed that is used for home use, electrically operated, and steplessly adjustable for the angle in back and the angle and/or height of knee part. However, this Standard excludes ordinary beds, bunk beds, children's beds, sofa beds, beds for hospitals, and beds with particular function (except the function to adjust the angle in back and the angle and/or height of knee part).

2 Normative references

The following standards contain provisions which, 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 B 7502 *Micrometer callipers*

JIS C 1509-1 *Electroacoustics—Sound level meters—Part 1: Specifications*

JIS T 0102 *Glossary of terms used in rehabilitation equipments for the physically disabled or handicapped persons*

JIS Z 1522 *Pressure sensitive adhesive cellophane tapes*

3 Terms and definitions

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

3.1 bottom

structure which supports the mattress, etc

A bottom can be bent or re-positioned to facilitate various positions.

3.2 knock-down bed

a bed which can be disassembled into some main parts for storage and conveyance

3.3 safe working load

a load that is specified for safe use of the bed, which is marked by the manufacturer on the body of the bed

This load includes the mass of human body, mattress, side rail, and grip for bed.

3.4 side rail (fixable/non-fixable)

a fence that prevents a user from falling down from a bed

For the fixable type it is fixed to a bed, or has the function of being fixed to a bed. The non-fixable type has no function of being fixed to a bed.

3.5 single piece side rails

only one side rail which is attached to one side of a bed

3.6 segmented side rails

two or more side rails which are attached to one side of a bed

3.7 principle of free wheeling

structure that is not restrained by the electrically operated components

3.8 control unit

equipment that controls the function of a bed by a remote switch, etc

3.9 grip for bed

a grip that is fixed to a bed in order to assist the movement of rising, standup, transfer, etc

3.10 swing function

a function of a grip part to be rotated and fixed in order to assist the movement of rising or transfer

3.11 body frame

a frame of body of a grip for a bed, which has the structure to fix to a bed (see figure A.3)

3.12 grip part

a part that is gripped of a grip for bed (see figure A.3)

3.13 usage state

the state where a side rail and/or a grip for bed and a recommended mattress are mounted to a bed according to the way specified by a manufacturer

3.14 compliant bed

a body of the bed in which the side rails and the grip for bed are mounted, their gap size, etc. comply with this Standard after mounted, and whose compliance is described in the instructions manual

4 Designation of each part

The designation of each part shall be in accordance with figure 1.

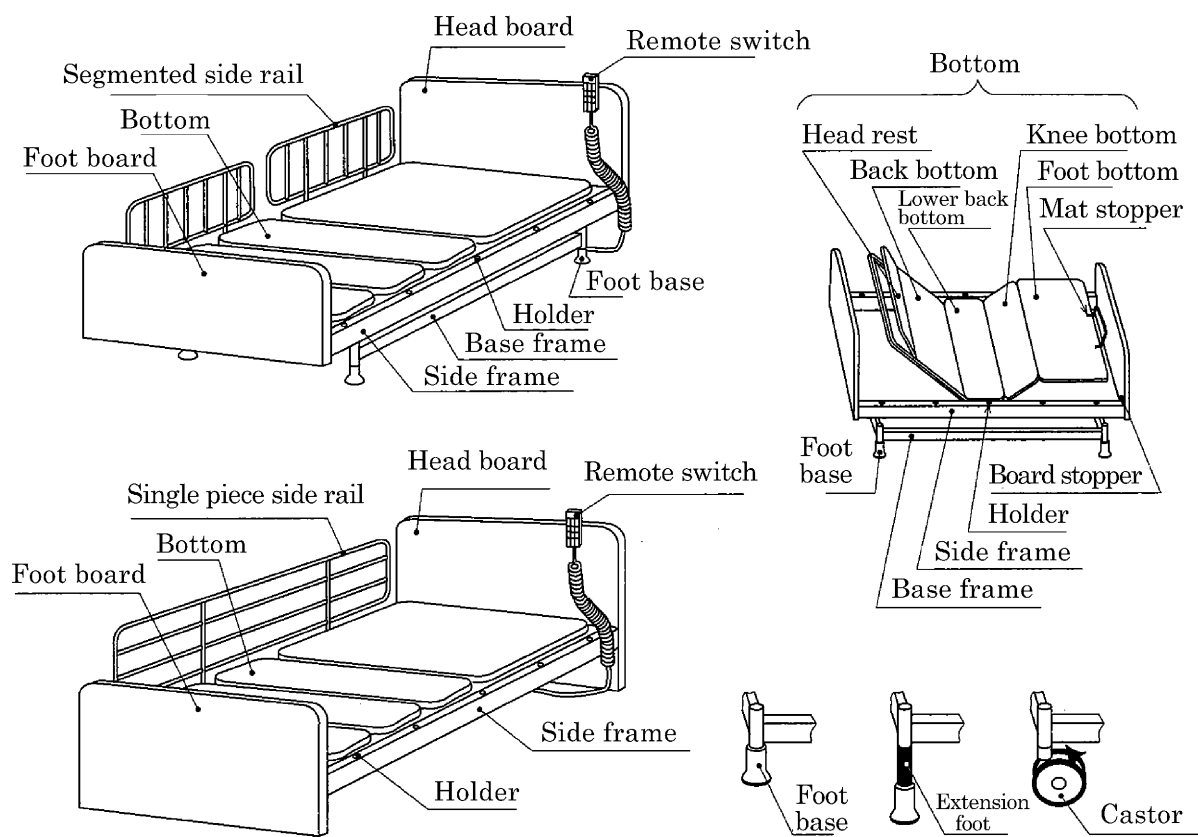


Figure 1 Designation of each part

5 Classification

Beds shall be classified into the five kinds as shown in table 1 depending on the operating type and function.

Table 1 Classification of bed

Classification	Symbol of classification
With the height adjustment function	H
With the back raising function	B
With the function of back raising and height adjustment	B and H
With the function of back raising and knee raising	B and K
With the function of back raising, knee raising and height adjustment	B, K and H

6 Design by risk management

The design by risk management shall be carried out on the following matters. A manufacturer or a distributor shall document and maintain the procedure and result of implementation of the design. The design by risk management should be carried out also for the related hazard described in Annex B.

- a) A risk of clothes, etc. of getting twisted
- b) A risk of the user body being pinched by the gap between the movable parts of the bed
- c) A risk of the user body being drawn or trapped into the gap of the body of the bed
- d) Ergonomics consideration (operability, easy to grip, etc.)

7 Structure and shape and dimensions

7.1 Structure of the body, side rail and grip for bed

- a) The structure of the body and side rail shall be as follows.

In addition, a body refers to a bed with the side rails and the grid for bed removed.

- 1) Body and side rails shall be stable and strong when placed on a horizontal floor surface. A strange sound, creak and the like shall not be generated when used.
 - 2) Each part shall be finished well, and shall be free from dangerous projections, sharp corners, fine splits, flashes, burrs and the like.
 - 3) The surface of coating shall be smooth, and shall be free from cracks and noticeable mottles.
 - 4) For the metallic parts liable to produce rust, anti-corrosive treatment shall be performed.
 - 5) Safe working load shall be at least 1 700 N.
 - 6) The control unit is intended to prevent an accident where a part of body may be trapped or pinched between the side rail and the bottom. It shall be so constructed as to enable the following operation. Keeping the button pressed maintains movement of the movable part, and releasing the button stops the movement automatically. Moreover, the application force of the button of the control unit shall be 5 N or less.
 - 7) In the case of a knock-down bed, the mass of any main parts shall be less than 50 kg, or the actual mass of those parts shall be marked and described in the instructions manual.
 - 8) In the case of a bed with castors, the stoppers shall be attached to two or more castors.
 - 9) Electromagnetic compatibility is described in Annex C.
- b) All the parts shall be attached robustly and shall not be removed unintentionally.
 - c) The grip for bed shall be constructed as follows.

- 1) Each joint and assembly shall be secure and shall be free from looseness, rattling, deformation, etc.
- 2) For the bed provided with the size adjustment mechanism, the mechanism shall not be loosened unintentionally in use.
- 3) The attachment to a bed shall be so constructed as to be robust and reliable, and shall not be removed unintentionally in use.
- d) The grip for bed with the swing function shall be so constructed as follows.
 - 1) The grip for bed with the swing function shall have a lock mechanism.
 - 2) The lock mechanism of the swing function shall be so constructed as to be secure and prevent unintended removal.

7.2 Shape and dimensions of body

The shape and dimensions of body shall be in accordance with figure 2 and table 2.

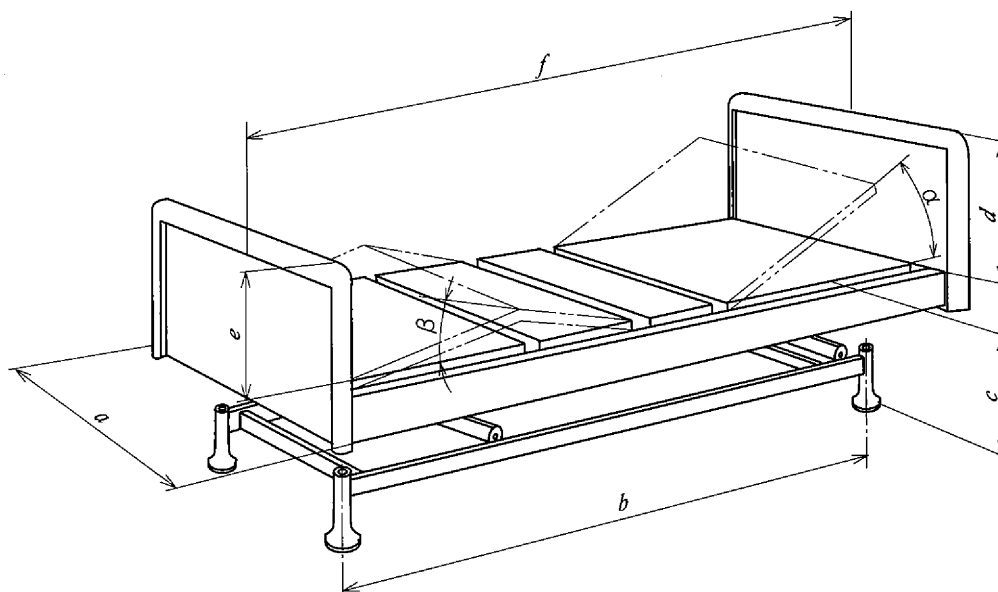


Figure 2 An example of shape of body

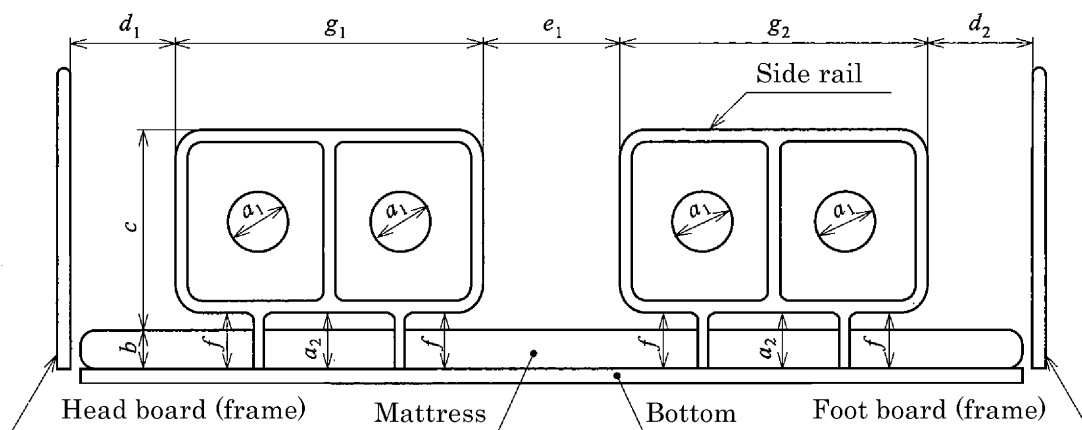
Table 2 Dimensions of bed and inclination angle of back section and leg section

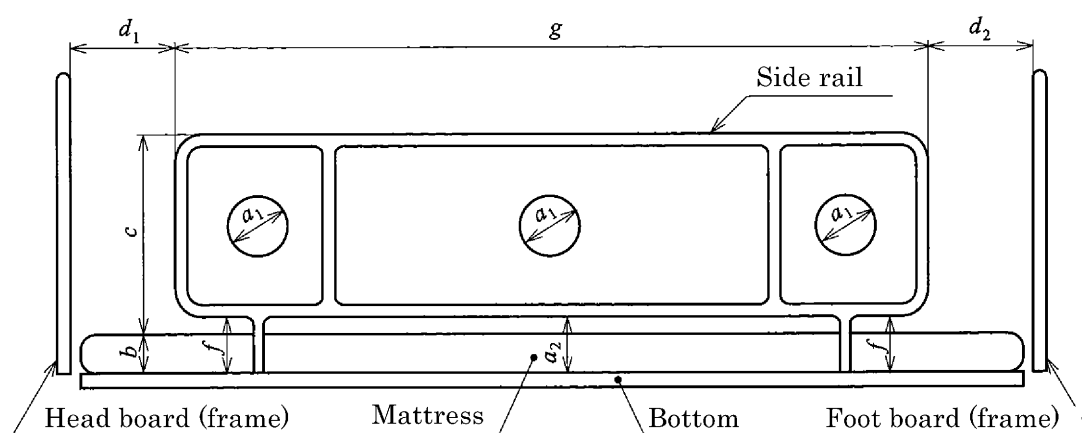
Unit : mm

Item	Dimensions	Tolerance	Symbol in figure 2
Width (the maximum outer size) ^{a)}	The basic size indicated in the instructions manual	± 10	a
Length between foot bases ^{a)}		± 20	b
Length (the maximum outer size) ^{a)}		± 20	f
Height of a bottom (from floor up to the upper surface of the bottom)		± 20	c
Head board (frame) Height of head board (frame) [from the upper surface of the bottom up to the upper end of the head board (frame)]		± 20	d
Foot board (frame) Height of foot board (frame) [from the upper surface of the bottom up to the upper end of the foot board (frame)]		± 20	e
Maximum inclination angle of back section (degree)		Above	α
Maximum inclination angle of knee section (degree)		Above	β
Note ^{a)} The dimensions of castors are not included in the dimensions of body. Therefore, when used, it shall be considered that the space of the rotation of castors is added to the dimensions of body.			

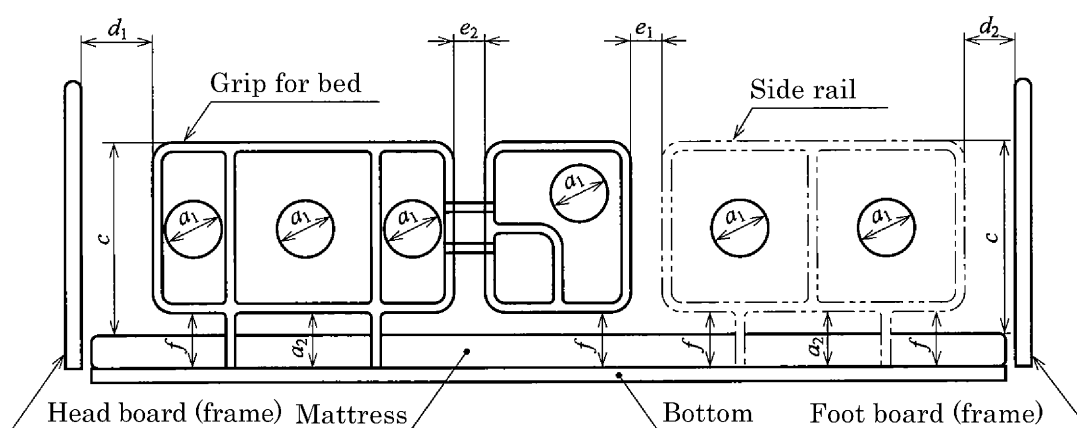
7.3 Shape and dimensions of side rails and grip for bed

The shape and dimensions of side rails and grip for bed shall be in accordance with figure 3 and table 3. However, these dimensions shall apply only when the bed is in a horizontal state, and when the bed in the usage state.

**a) An example of shape of bed with segmented side rails****Figure 3** Shape of side rails and grip for bed



b) An example of shape of bed with single piece side rails



c) An example of shape of bed with grip for bed

NOTE : In the above figures, the symbol a_2 indicates a closed space, and the symbol f indicates a gap of opening.

Figure 3 (concluded)