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Third edition
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Furniture — Children's cots and folding cots for domestic use —

Part 2: Test methods

Ameublement — Lits fixes et lits pliants pour enfants à usage domestique —

Partie 2: Méthodes d'essai

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CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 136, *Furniture*.

This third edition cancels and replaces the second edition (ISO 7175-2:1997), which has been technically revised. The main change compared to the previous edition is as follows:

— the document has been aligned with EN 716-2:2017.

A list of all parts in the ISO 7175 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Furniture — Children's cots and folding cots for domestic use —

Part 2: Test methods

1 Scope

This document specifies test methods to assess the safety of children's cots and folding cots for domestic use with an internal length of between 900 mm and 1 400 mm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 48-5, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 5: Indentation hardness by IRHD pocket meter method*

ISO 2439, *Flexible cellular polymeric materials — Determination of hardness (indentation technique)*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 General test conditions

4.1 Preliminary preparation

The tests are designed to be applied to a cot that is fully assembled and ready for use.

The test unit shall be stored in indoor ambient conditions for at least one week immediately prior to testing. Any deviation from this procedure shall be stated in the test report.

Before testing, any fabrics intended to be removable shall be cleaned or washed twice in accordance with the manufacturer's instructions. If no instructions are supplied, the washing/cleaning shall be described in the test report.

The tests shall be carried out under indoor ambient conditions but if, during a test, the atmospheric temperature is outside the range 15 °C to 25 °C, the maximum and/or minimum temperature shall be recorded in the test report.

The cot shall be tested as delivered. If the cot is a knock-down type, it shall be assembled according to the manufacturer's instructions supplied with the cot. If the cot can be assembled, combined or adjusted in different ways, the most adverse combination shall be used for each test.

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Knock-down fittings shall be tightened before testing. Further re-tightening shall not take place unless specifically required by the manufacturer.

In the case of designs not catered for in the test procedures, the tests shall be carried out as far as possible as described, and a list of the deviations from the test procedures shall be made.

4.2 Test equipment

Unless otherwise specified, test forces may be applied by any suitable device, because results are dependent only upon correctly applied forces and loads, and not upon the apparatus.

The equipment shall not inhibit the deformation of the cot during testing. It shall be able to move in order to follow the deformation of the cot during testing, so that the loads are always applied at the specified point and in the specified direction.

All loading pads shall be capable of pivoting in relation to the direction of the applied force. The pivot point shall be as close as practically possible to the load surface.

4.3 Application of forces

The forces in the static load tests shall be applied slowly enough to ensure that negligible dynamic force is applied.

The forces in durability tests shall be applied at a rate such that excessive heating does not occur.

4.4 Tolerances

Unless otherwise stated, the following tolerances apply:

— Forces: ±5 % of the nominal force;

— Masses: ±0,5 % of the nominal mass;

— Dimensions: nominal dimension ±1,0 mm;

— Angles: nominal angle ±2°;

— Positioning of loading pads: ±5 mm;

— Duration of forces: (2 ± 1) s for durability tests;

(10 ± 2) s for static load tests, including tension, torque and bite tests.

The tests are described in terms of the application of forces. Masses can, however, be used. The relationship 10 N = 1 kg shall be used for this purpose.

4.5 Test sequence

The tests shall be carried out in the order laid down in this document and on the same cot.

4.6 Prevention of movement during test

If the cot tends to slide or roll during the tests specified in Clause 6, it shall be restrained by stops (5.6).

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5 Test apparatus

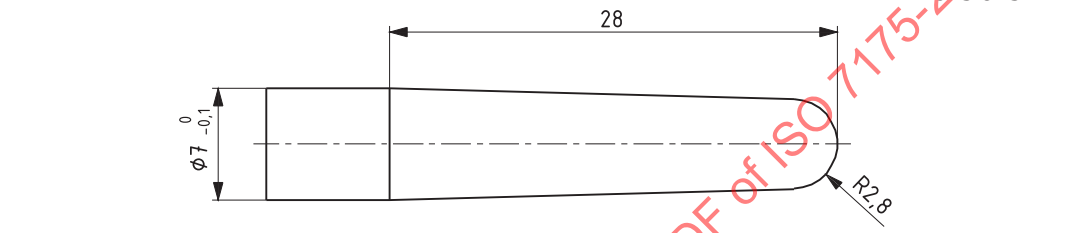
5.1 Measuring probes, made of plastics or other hard, smooth material mounted on a force-measuring device.

There shall be one probe with a diameter of $7^{\ 0}_{-0,1}$ mm; see Figure 1 a).

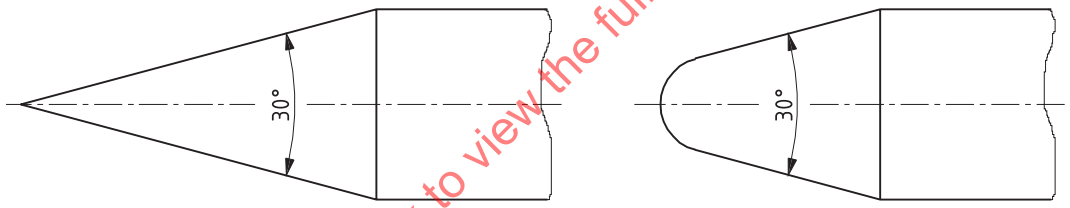
There shall be five probes with an angle of 30° ± 0,5° with diameters of $25^{+0,1}_{\ 0}$ mm, $45^{+0,1}_{\ 0}$ mm, $60^{+0,1}_{\ 0}$ mm, $65^{+0,1}_{\ 0}$ mm and $85^{+0,1}_{\ 0}$ mm with conical ends; see Figure 1 b).

There shall be four cylindrical probes with diameters of $5^{\ 0}_{-0,1}$ mm, $7^{\ 0}_{-0,1}$ mm, $12^{+0,1}_{\ 0}$ mm and $18^{+0,1}_{\ 0}$ mm with hemispherical ends; see Figure 1 c).

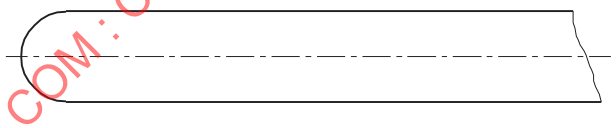
Dimensions in millimetres



a) 7 mm probe



b) Conical probes



c) Cylindrical probes

Figure 1 — Measuring probes

5.2 Bottom impactor with a total mass of 10 kg, of hardwood or equivalent material, with dimensions in accordance with Figure 2.

The impactor shall be guided so that it is kept vertical and always falls on the impact point.

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Dimensions in millimetres

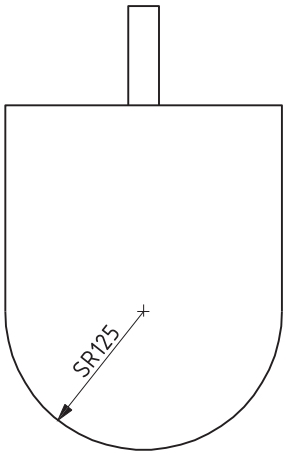

Figure 2 — Bottom impactor

5.3 Test mattress, consisting of a polyurethane foam sheet with a thickness of 60 mm, a bulk density of 35 kg/m^3, with a tolerance of ±10 %, or an indentation hardness index of (170 ± 40) N, which shall be in accordance with $A_{(40\ \%/30\ s)}$ of ISO 2439, and being at least 400 mm × 800 mm in area but not larger than the mattress base of the cot under test. The test mattress shall have a light soft cotton cover with a mass not greater than 120 g/m^2.

5.4 Side impactor, consisting of a pendulum with a cylindrical head made of steel (Figure 3). The head of the pendulum shall be surrounded by a 10-mm thick layer of rubber of hardness 76 IRHD to 78 IRHD in accordance with ISO 48-5. The total mass shall be 2 kg.

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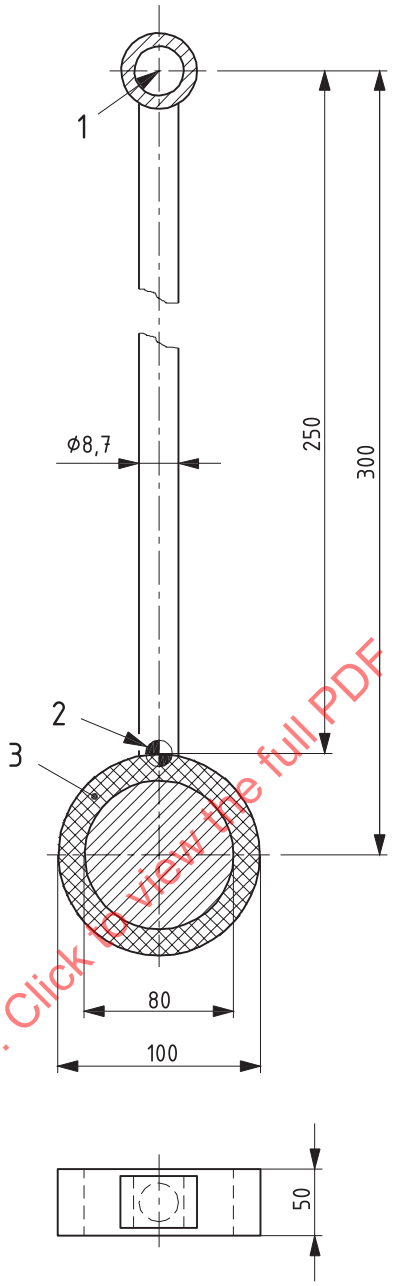
Dimensions in millimetres



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Key

1 pivot point
2 centre of gravity
3 rubber 76 IRHD to 78 IRHD

Figure 3 — Side impactor

5.5 Loading pad, consisting of a rigid cylindrical object, 100 mm in diameter, having a smooth hard surface and rounded edge with radius of 12 mm.

5.6 Stops which prevent the article from sliding but not tilting, not higher than 12 mm except in cases where the design of the item necessitates the use of higher stops, in which case the lowest that will prevent the item from sliding shall be used.

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5.7 Floor surface, consisting of a rigid, horizontal and flat surface.

5.8 Test chain and mass, consisting of a ball chain with a ball diameter of (3,2 ± 0,2) mm and a distance between ball centres of (4,0 ± 0,2) mm (Figure 4), fixed to a 2,5 kg spherical weight with a diameter of 115 mm forming a loop in accordance with Figure 5.

Dimensions in millimetres

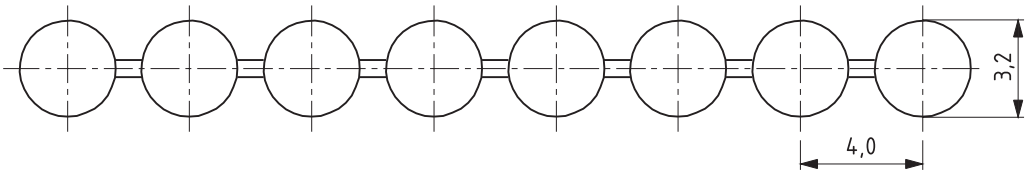
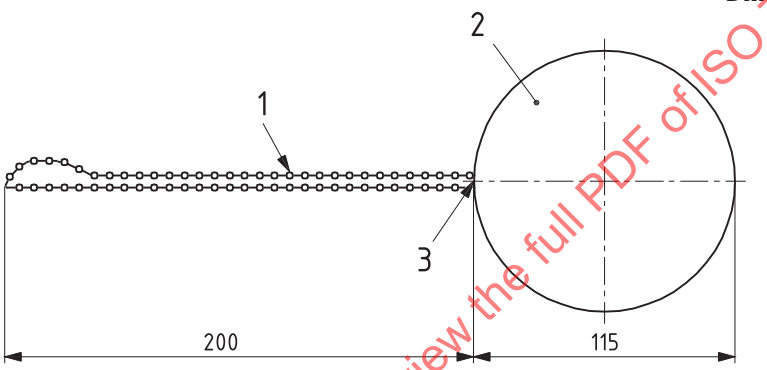


Figure 4 — Ball chain

Dimensions in millimetres



Key

1 ball chain
2 weight, mass 2,5 kg
3 fixing point

Figure 5 — Test chain and mass

5.9 Small parts cylinder for assessment of small components, having dimensions in accordance with Figure 6.

NOTE The cylinder is identical to the one specified in ISO 8124-1.

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Dimensions in millimetres

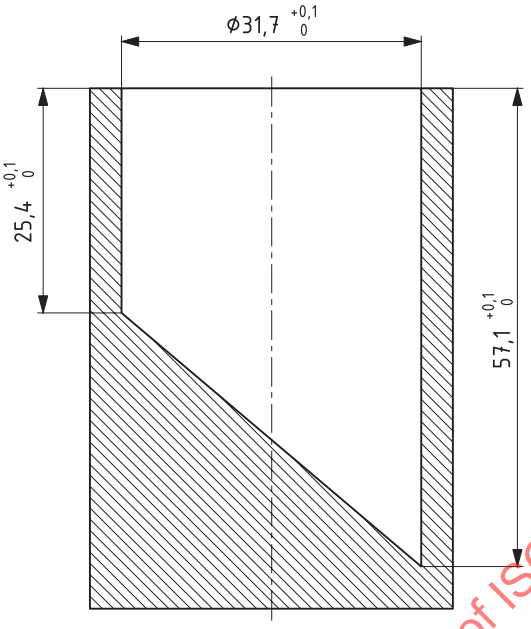

Figure 6 — Small parts cylinder

5.10 Test mass, consisting of a weight having a mass of 10 kg and a cross-section of 100 mm × 30 mm.

5.11 Bite tester, which is an apparatus (Figure 8), consisting of two sets of teeth (Figure 7), made from H13 high chrome tool steel or equivalent and hardened to 45 Rockwell C to 50 Rockwell C. There shall be two teeth at the top and two at the bottom of the bite tester, positioned so that the vertical centre line of one pair of teeth is (1 ± 0,1) mm in front of the centre line of the other set of teeth. In the fully closed position, the teeth shall overlap each other by (1 ± 0,1) mm. The outer most corners of the teeth shall have a radius of (0,3 ± 0,1) mm.

The teeth shall be mounted so as to pivot about a point (50 ± 1) mm from the rear most pair of teeth and positioned so that, when closed, the centre lines of the two pairs of teeth are parallel to each other. The bite tester shall be equipped with a stop to prevent the distance between the teeth from exceeding (28 ± 1) mm when fully opened. The closing force of the teeth shall be set at (50 ± 5) N.

The bite tester shall be provided with a guide to prevent items entering further into the fully opened jaws by more than (17 ± 1) mm. The bite tester shall be equipped with a means whereby a force of (50 ± 5) N can be applied along its centre line in a direction tending to pull the teeth off the sample.

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Dimensions in millimetres

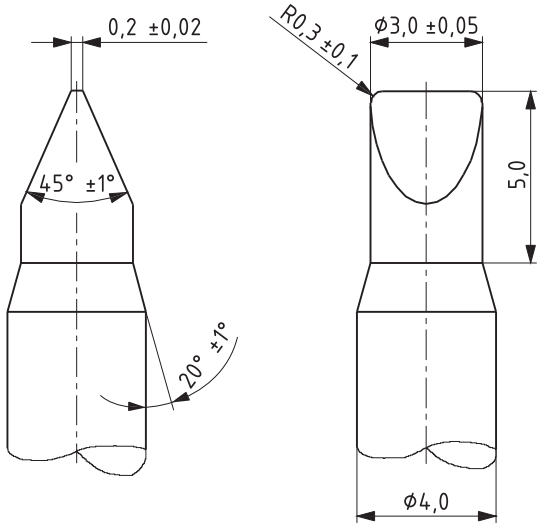
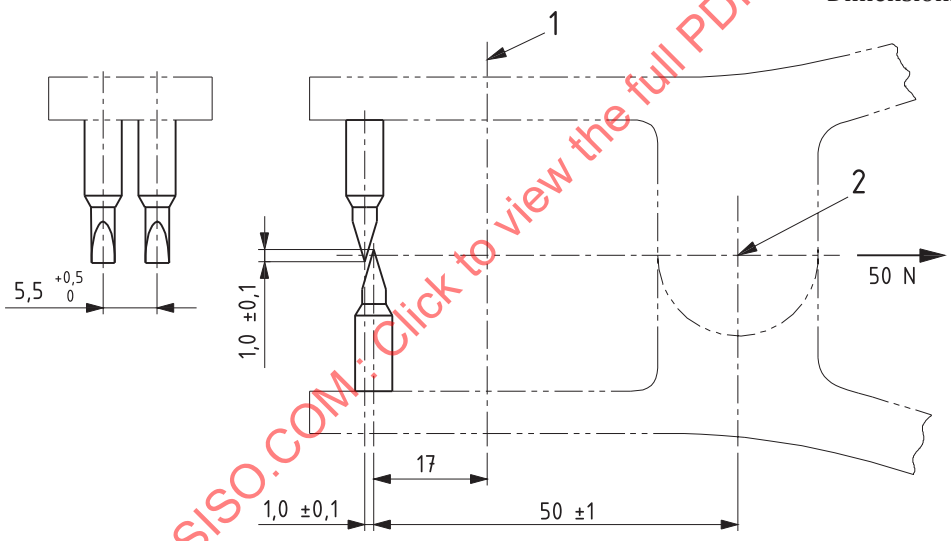


Figure 7 — Test teeth

Dimensions in millimetres



Key

1 position of guide

2 pivot point

Figure 8 — Bite tester

5.12 Two retaining blocks made of rigid material with a width of 50 mm and a radius of 5 mm at the front edges.

5.13 Foothold template, consisting of a strip of 10 mm thick transparent material cut to the shape as shown in Figure 9, marked on one face with the pattern as shown.

The sides of the template shall be at a right angle to the faces. All edges and corners shall be without any radius.

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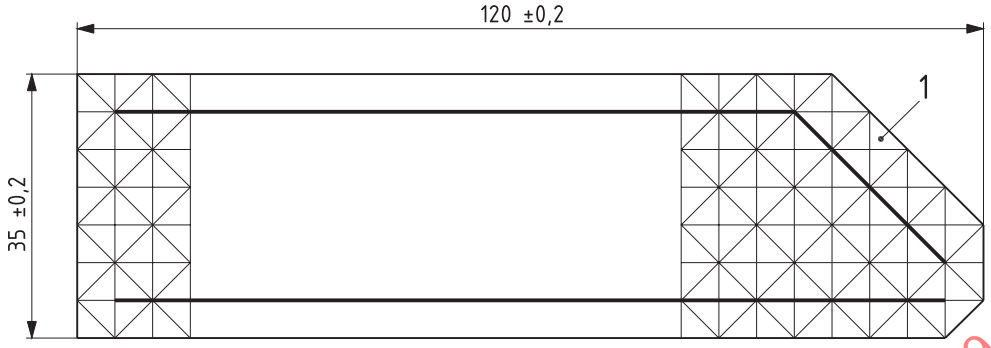
Dimensions in millimetres



Key

1 triangular cells plotted on a 5 mm × 5 mm grid

Figure 9 — Template for foothold test (example of left hand template)

Two templates are required to provide a left and right hand template. The markings shown in Figure 9 shall be on the bottom face of each template to avoid parallax errors.

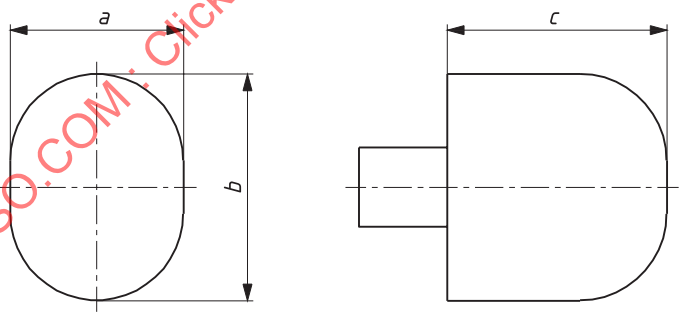
5.14 Head probes.

5.14.1 Small head probe.

The small head probe shall be made from plastics or other hard, smooth material with the dimensions given in Figure 10. The radius shall be 53 mm.

NOTE The small head probe represents a child aged 6 months to 9 months.

Dimensions in millimetres



Key

a 106 mm

b 145 mm

c 126 mm

Figure 10 — Small head probes

5.14.2 Large head probe.

The large head probe shall be made from plastics or other hard, smooth material with the dimensions given in Figure 11.

NOTE The large head probe represents a child aged up to 36 months.

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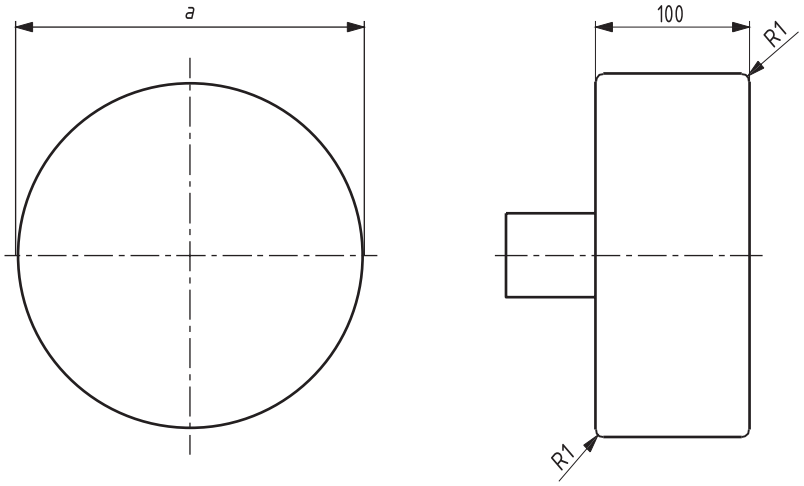
Dimensions in millimetres



Key

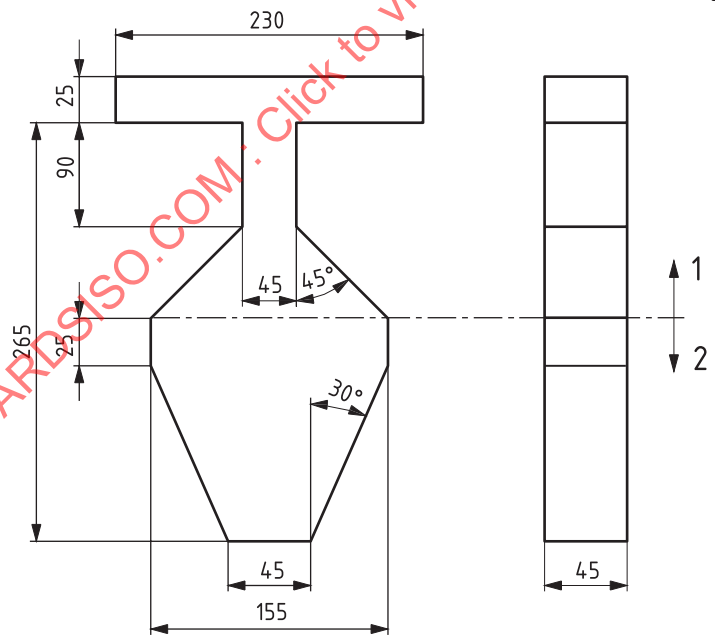
a 223 mm

Figure 11 — Large head probe

5.15 Template for V-and irregularly shaped openings.

The template for V and irregularly shaped openings shall be made from plastics or other hard, smooth material with the dimensions given in Figure 12. The tolerance for the angles shall be ±1°.

Dimensions in millimetres



Key

1 B portion

2 A portion

Figure 12 — V and irregularly shaped-openings template

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5.16 Test dummy, consisting of a solid cylinder 200 mm in diameter and 300 mm in height, having a mass of 15 kg and with its centre of gravity 150 mm above its base. All the edges of the cylinder shall have a radius of 5 mm.

6 Test procedures

6.1 Assembly and inspection

Assemble the cot in accordance with the manufacturer's instruction. Prior to the test, inspect the cot visually for defects.

Tighten all knock-down fittings.

After testing, check where appropriate:

— whether there are sharp edges or burrs,

— whether the functions of the locking mechanisms are impaired,

— whether the functions of the cot are impaired,

— whether the sizes of the openings have changed so that they present a safety hazard,

— if relevant, whether the stability of the cot has changed.

6.2 Stability — Test

The cot shall be tested without mattress unless the mattress is an integral part of the cot.

Position the cot on the floor (5.7) with the legs against the stops (5.6). The tilting tendencies shall not be restrained.

Adjust the cot base to its highest position.

Attach the test mass (5.10) on the inside at the centre of the upper edge of the cot side/end so that its centre of gravity is 50 mm below the upper edge of the cot side/end (Figure 13). At the same side/end, apply a force of 30 N horizontally outwards at the centre of the upper edge of the cot side/end.

Record whether the cot overturns.

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Dimensions in millimetres

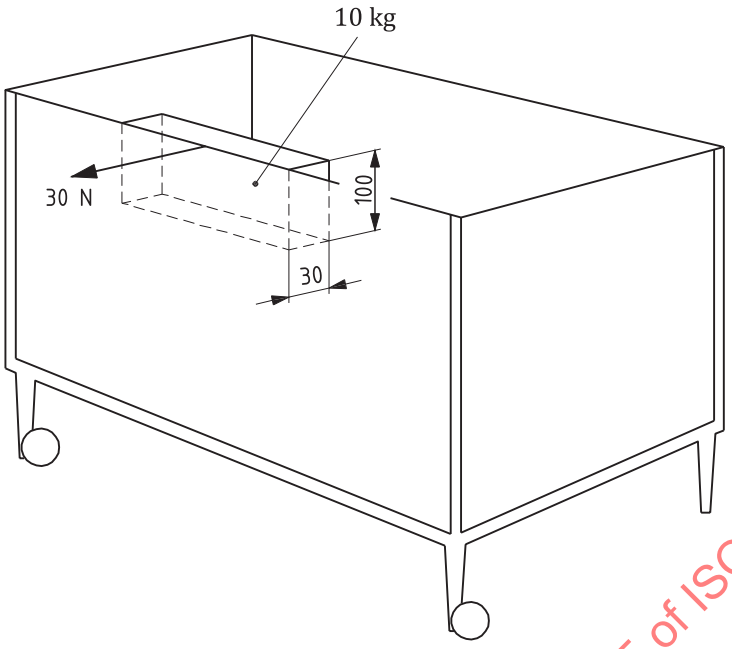


Figure 13 — Stability

6.3 Footholds

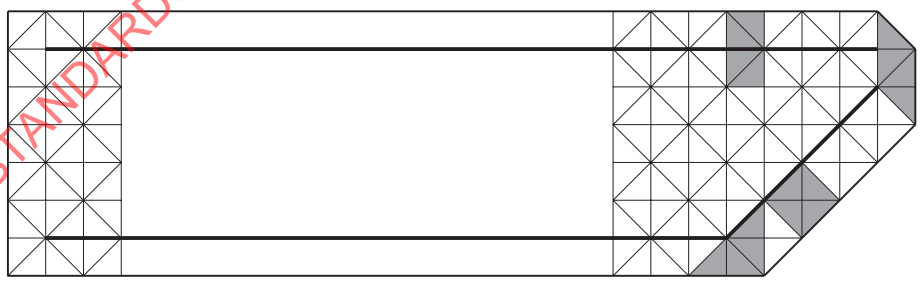
6.3.1 Determination of a foothold

6.3.1.1 General

Seams in fabrics of multiple layers are not considered as footholds.

6.3.1.2 Continuous structure

A foothold exists on a continuous structure if four triangles marked on the template are completely obscured by the structure being checked. These four triangles shall have at least one side in common with another of the triangles; see Figure 14.



Key

This shaded area denotes one triangle; four shaded areas denote four covered triangles.

Figure 14 — Examples of obscured triangles indicating a foothold on a continuous structure

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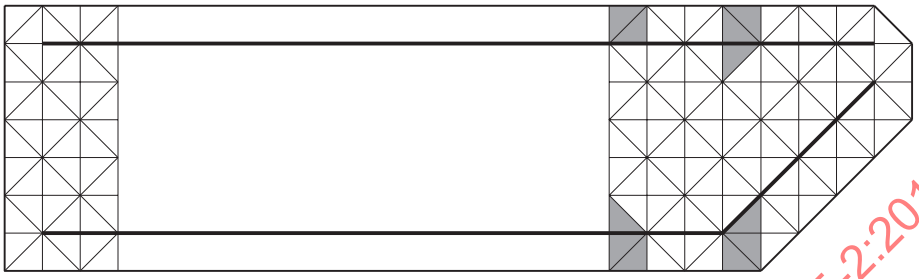
6.3.1.3 Non-continuous structure

A foothold exists on a non-continuous structure if two or more triangles marked on the template are completely obscured between the edge of the template and the bold lines of the template by the structure being checked. The two or more triangles on either side of the template shall have at least one side in common with each other; see Figure 15.



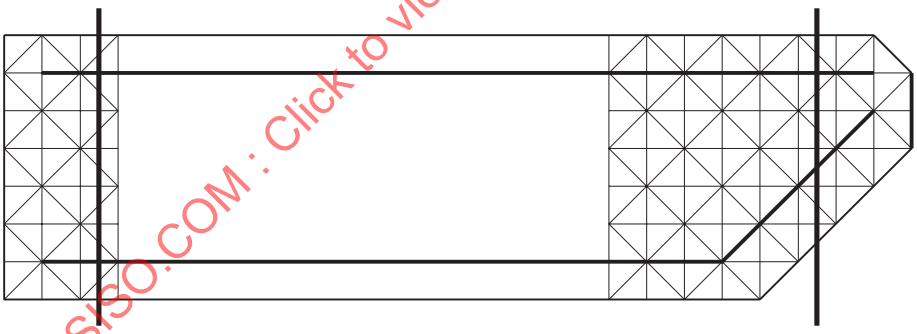
Key

This shaded area denotes one triangle.

Figure 15 — Examples of obscured triangles on a foothold on a non-continuous structure

6.3.1.4 Wire, thin structures and similar parts

A foothold exists on a wire, thin structure and similar part if it projects across the bold lines on the template; see Figure 16. Any wire, thin structure or similar part with a maximum width of 5 mm shall be checked in accordance with 6.3.2.3.



Key

This denotes a wire, thin structure or similar structure.

Figure 16 — Example of a foothold on a wire, thin structure and similar part

6.3.2 Test of footholds

6.3.2.1 Footholds on a continuous structure at an angle of less than 55°

Using either the left or right hand template, place the template with its marked face on any continuous structure inclined at less than 55° to the horizontal. Orientate either template (Figure 9) to check whether four triangles are obscured; see Figure 17.

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6.3.2.2 Footholds on a non-continuous structure at an angle of less than 55°

Using either the left or right hand template, place the template with its marked face on any non-continuous structure inclined at less than 55° to the horizontal. Orientate either template (Figure 9) to check whether any triangles are obscured on either side of the bold lines on the template; see Figure 18.

6.3.2.3 Wire, thin structures or similar parts at an angle of less than 55°

Using either the left or right hand template, place the template with its marked face on any wire, thin structure or similar parts at an angle less than 55° to the horizontal. Check whether the wire, thin structure or similar part has a line of contact extending between the two bold lines marked along the template (Figure 9). See Figure 19 for examples.

6.3.2.4 Intersecting or adjacent structures where the second structure prevents slipping

Using either the left or right hand template, place the template with its marked face on any structure, thin structure or similar parts between 55° and 80° to the horizontal where there is also a supporting structure. Orientate either template (Figure 9) to check whether any four triangles are obscured. See Figure 20 for examples.

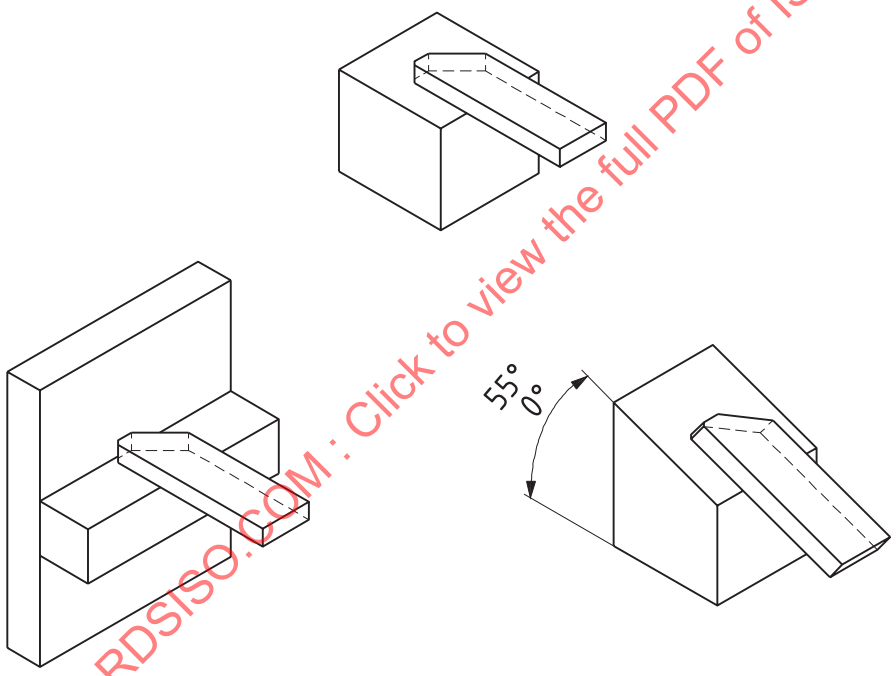

Figure 17 — Examples of footholds on a continuous structure at an angle of less than 55°

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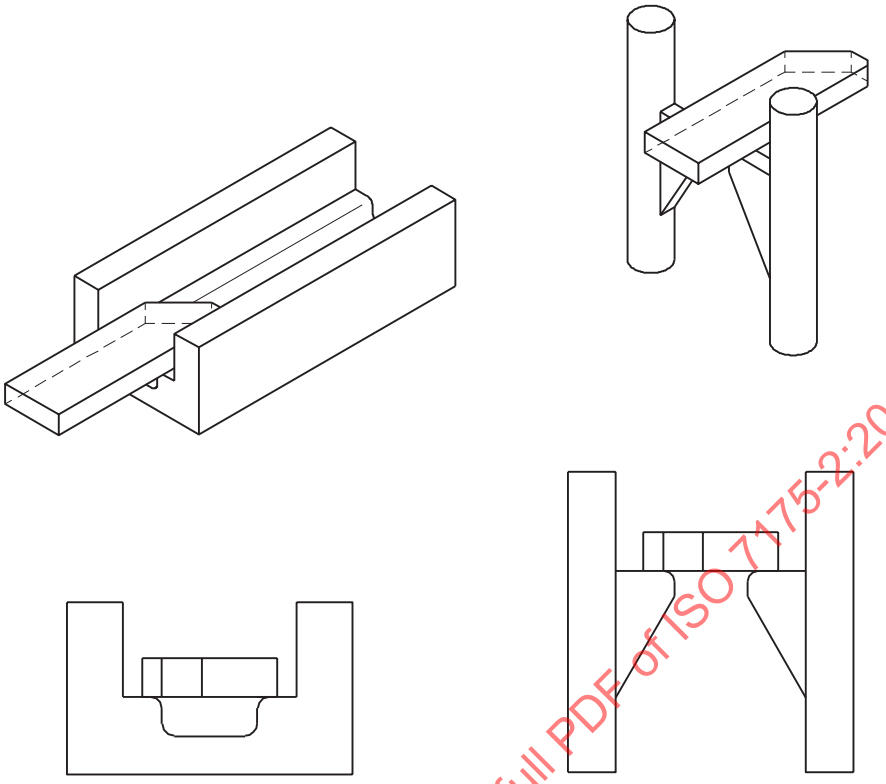

Figure 18 — Examples of footholds on a non-continuous structure at an angle of less than 55°

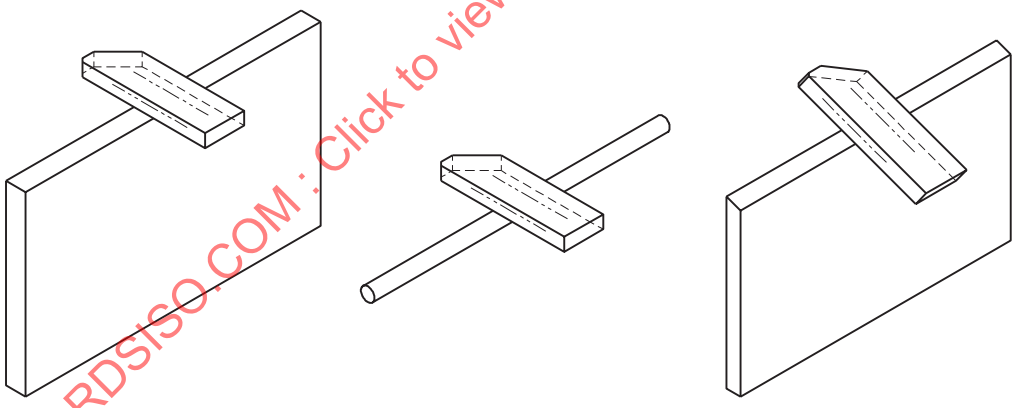

Figure 19 — Examples of footholds on wire, thin structures and similar parts at an angle of less than 55°

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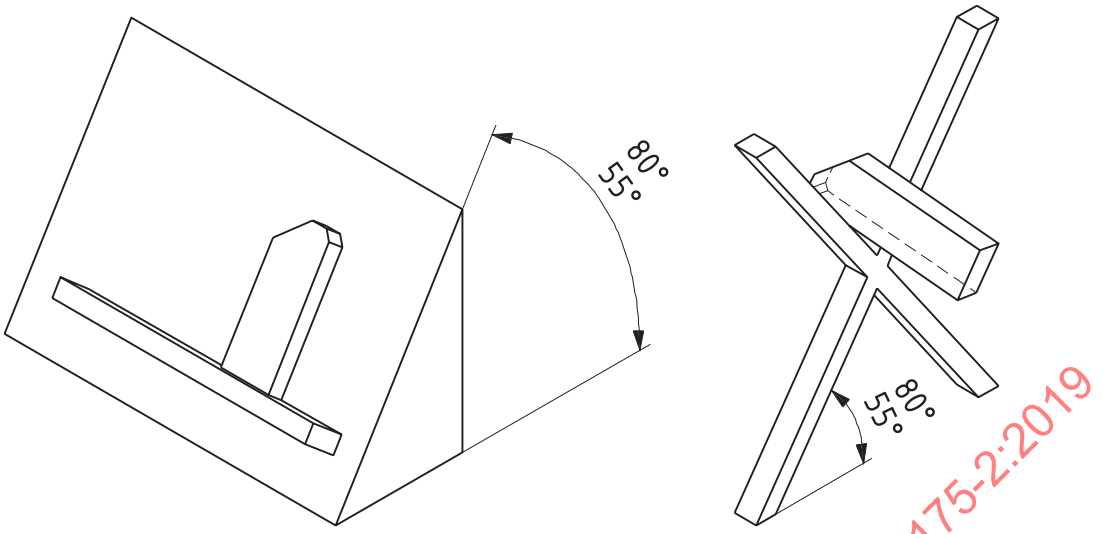

Figure 20 — Examples of footholds on intersecting or adjacent structures where the second structure prevents slipping

6.3.2.5 Flexible materials

Where flexible materials or fabrics are covering rigid components, the template shall be pushed against the flexible material or fabric with a horizontal force of up to 30 N acting along the longitudinal axis of the template. Orientate either template (Figure 9) to check whether any four triangles are obscured by the rigid components indicating a foothold.

Rigid components do not include fabrics, seams in fabrics of multiple layers.

6.3.3 Measurement of distance between footholds and/or top of cot sides and ends

Measure the distance between the top of any foothold and the top of the cot side and end in any direction; see Figure 21. Footholds also include the top of the cot base and the top of the mattress base, but exclude the top of the cot side and end.

When measuring from the mattress base, the measurement shall be carried out with the test dummy (5.16) on the mattress base. The measurement shall be taken from the bottom of the test dummy.

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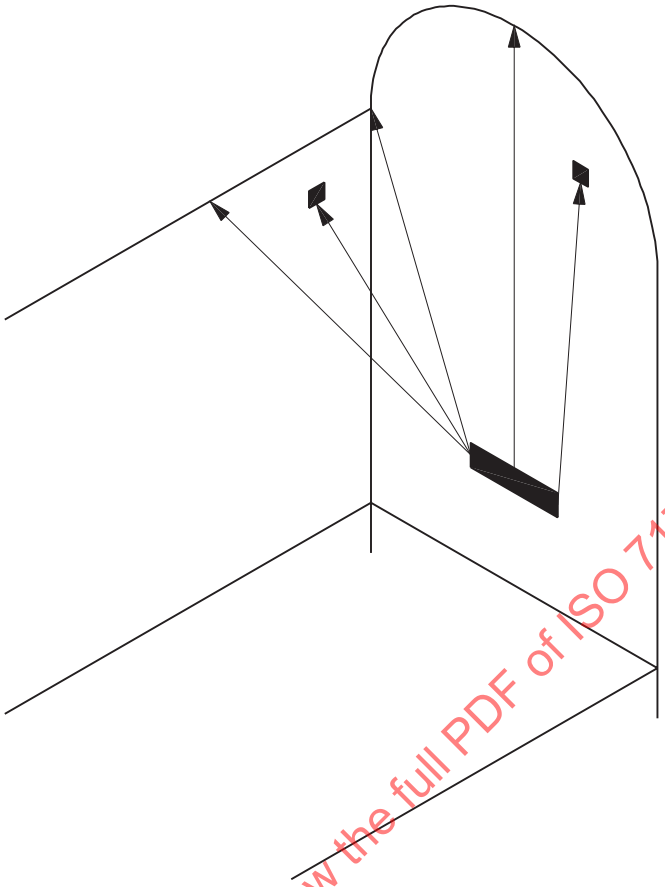

Figure 21 — Example of measurement between footholds and/or top of cot sides and ends

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6.4 Measurements

6.4.1 Holes, gaps and openings inside the cot

Press the applicable measuring probe (5.1) with a force as specified in Table 1 between the wires of the mesh, the slats of the cot base, the side slats and between the cot base and the sides and ends.

Table 1 — Measuring probe diameters and applied forces

Holes, gaps and openings inside the cot	Cylindrical probe diameter mm	Cone diameter mm	Force N
Shear and squeeze points	5	—	No force
Shear and squeeze points	18	—	No force
Mesh side and ends	—	7	30
Diameter of holes, clearance between structural members	—	45	No force
Diameter of holes, clearance between structural members	—	65	30
Distance between cot base and sides and ends	—	25	30
Slats of the cot base	—	60	30

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Table 1 *(continued)*

Holes, gaps and openings inside the cot	Cylindrical probe diameter mm	Cone diameter mm	Force N
Mesh of cot base	—	85	90
All other holes, gaps and openings	7	25 and 65	30
All other holes, gaps and openings	12	45	No force

6.4.2 Holes, gaps and openings on the outside of the cot

6.4.2.1 Completely bound holes, gaps and openings

Press the small head probe (5.14.1) with the highest force possible up to 30 N into completely bound openings. If the small head probe passes completely through the opening, check whether the large head probe (5.14.2) passes completely through the completely bound opening with a force of up to 5 N. If completely bound openings contain V or irregular shaped openings, they shall also be tested in accordance with 6.3.2.2.

6.4.2.2 Partially bound, V and irregular shaped holes, gaps and openings

Position the "B" portion of the template (5.15) between and perpendicular to the boundaries of the opening, as shown in Figure 23 or Figure 24, as appropriate. If the full thickness of the template cannot be inserted, there is no hazard, but if the full thickness of the template can be inserted, there is a hazard; see Figure 22 and Figure 23.

If the template (5.15) can be inserted to a depth greater than the thickness of the template (45 mm), apply the "A" portion of the template, so that its centre line is in line with the centre line of the opening. Ensure that the plane of the template is parallel and applied in line with the opening, as shown in Figure 24. Insert the template along the centre line of the opening until its motion is arrested by contact with the boundaries of the opening. If the template touches the bottom of the opening, there is no hazard, but if the sides of the template touch the sides of the opening, there is a hazard; see Figure 24.

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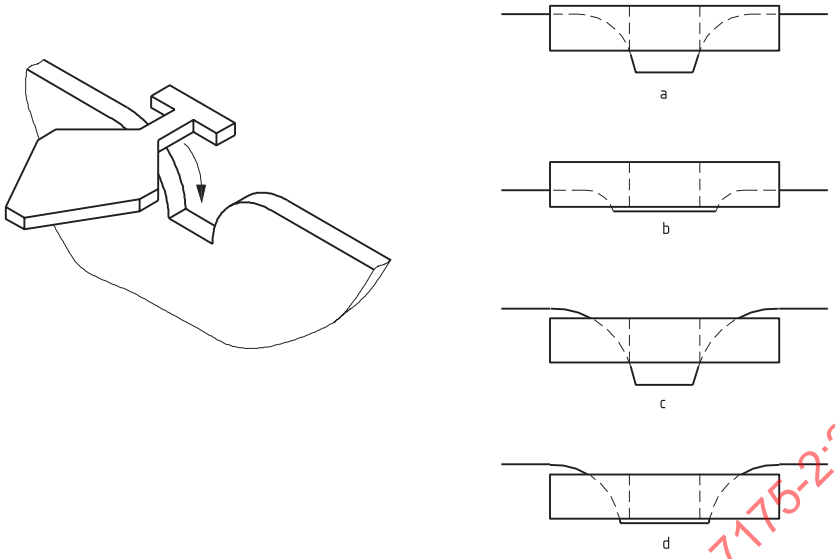
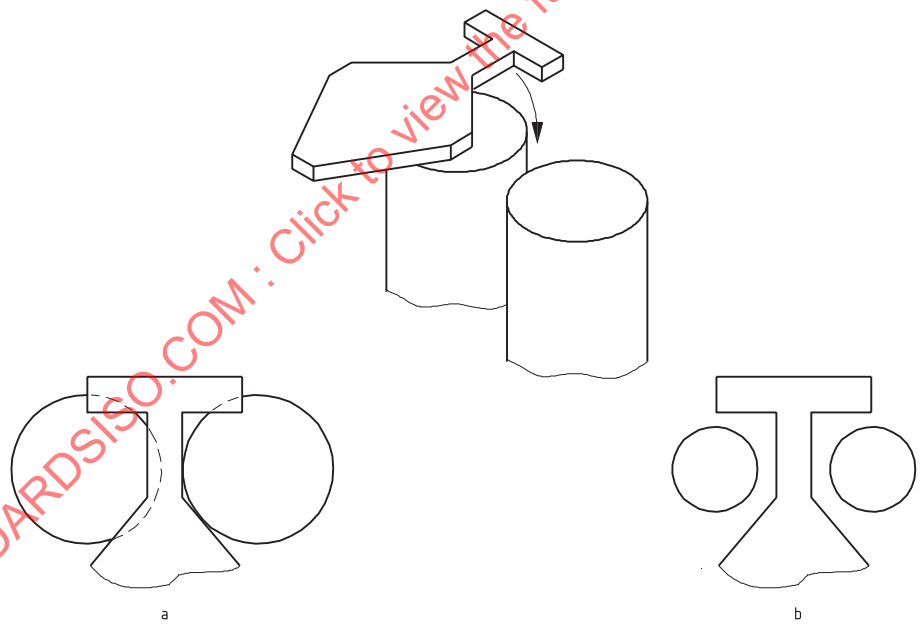


Key

[a] and [b] No hazard.

[c] and [d] Hazard.

Figure 22 — Method of insertion of portion B



Key

[a] No hazard.

[b] Hazard.

Figure 23 — Method of insertion of portion B

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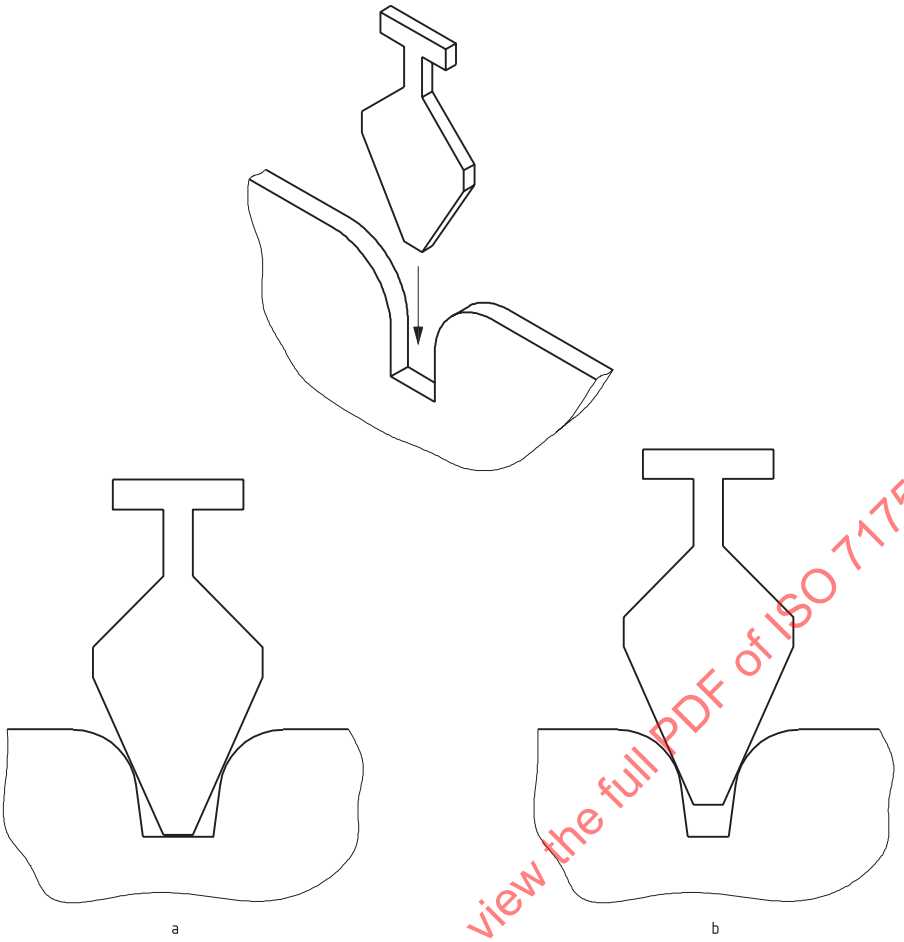

Key

a No hazard.

b Hazard.

Figure 24 — Method of insertion of portion A

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6.5 Small parts

6.5.1 General

These tests are applicable only to small parts which are considered grippable by a child and which can fit wholly into the small parts cylinder (5.9).

A part is considered to be grippable by a child if they can grip the part between their thumb and forefinger or between their teeth.

The tension test (see 6.5.3) shall be carried out after the torque test (see 6.5.2) and on the same part as used for the torque test.

6.5.2 Torque test

Apply a torque gradually to the part within a period of approximately 5 s in a clockwise direction until either:

a) rotation of 180° from the original position has been attained; or

b) torque of 0,34 Nm is reached.

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The maximum rotation or required torque shall be applied for (10 ± 2) s.

The part shall then be allowed to return to a relaxed condition and the procedure repeated in an anticlockwise direction.

Where projections, parts or assemblies are rigidly mounted on an accessible rod or shaft designed to rotate together with the projections, parts or assemblies, the rod or shaft shall be clamped to prevent rotation during the test.

If a part is attached by a screw thread that becomes loosened during application of the required torque, the torque shall continue to be applied until the required torque is exceeded, the part disassembles or it becomes apparent that the part will not disassemble.

When using clamps and test equipment, care shall be taken not to damage the attachment mechanism or body or the part.

6.5.3 Tension test

Apply a tensile force to the part through a clamp or by other suitable means. Apply a force of:

— 50 N where the largest accessible dimension is less than or equal to 6 mm;

— 90 N where the largest accessible dimension is greater than 6 mm.

Apply the force gradually over approximately 5 s and maintain for (10 ± 2) s.

If the part has become detached, check whether the part fits wholly within the small parts cylinder (5.9).

6.6 Bite test

The bite test shall be carried out in two stages:

a) pinch the materials of the inside face of the cot rim between finger and thumb and attach the bite tester (5.11) so as to "bite" the smallest amount of materials possible to allow contact with all four teeth and apply a pulling force of 50 N, maintaining it for 10 s to the bite tester; then

b) open the jaws of the bite tester as far as possible and push it horizontally onto the cot rim as far as the guide, allow the teeth to close on the cot rim and apply a pulling force of 50 N, maintaining it for 10 s to the bite tester.

This test procedure shall be applied to the following positions of the cot rim:

1) centre of the longest straight edge;

2) centre of the longest radiused portion;

3) centre of the smallest radiused portion;

4) any joint or seam;

5) any other position considered more onerous.

If, during the test procedure, the outer material of the cot rim is punctured by the teeth, remove the outer material to expose the layer below or the filling and repeat stages a) and b)until the filling cannot be reached or no filling becomes detached. As soon as any filling becomes detached, the test shall be terminated.

A puncture has occurred when at least one tooth of the bite tester has broken the textile or plastic material to which it is being applied, the tooth passing through the entire thickness of the material. Where the bite tester is applied to materials of a loose weave or open mesh, a puncture has occurred when part of the weave or mesh is broken by at least one of the teeth of the bite tester. If the teeth of

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the bite tester pass a loose weave or open mesh without damaging the material, a puncture has not occurred.

6.7 Tests for cot base and mattress base

6.7.1 Folding test of the mattress base and cot base

Apply a force of 50 N to the bed base or mattress bed base by pulling or pushing the bed base or mattress bed base in the position most likely to cause folding of the short or of the long side.

The force shall not be applied on any attachment device (e.g. button, touch-and-close fastener).

6.7.2 Strength of cot base and mattress base (impact test)

Place the test mattress (5.3) flat on the cot base or mattress base.

Drop the bottom impactor (5.2) 1 000 times, at a rate of not more than 30 times per min, through a distance of 150 mm above the cot base or mattress base, onto the test mattress at each of the selected positions of impact. The impacter shall fall freely and bouncing shall not be restricted.

The impacter shall not hit the test mattress on the same position when alternating between the impact points. The test mattress shall not be used for more than 5 complete tests.

The points of impact shall be a) to f) as follows (see Figure 25):

a) any corner;

b) any place where the bottom appears weakest, or — if no specific weak spot can be selected — in the corner diagonally opposite a);

c) centre of one side;

d) centre of one end;

e) centre of the cot base;

f) if the cot base can have more than one height position, and if its support construction is not the same for the different positions, the base shall be tested additionally in its highest position, but then only at the two diagonal corners that have not been tested.

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Dimensions in millimetres

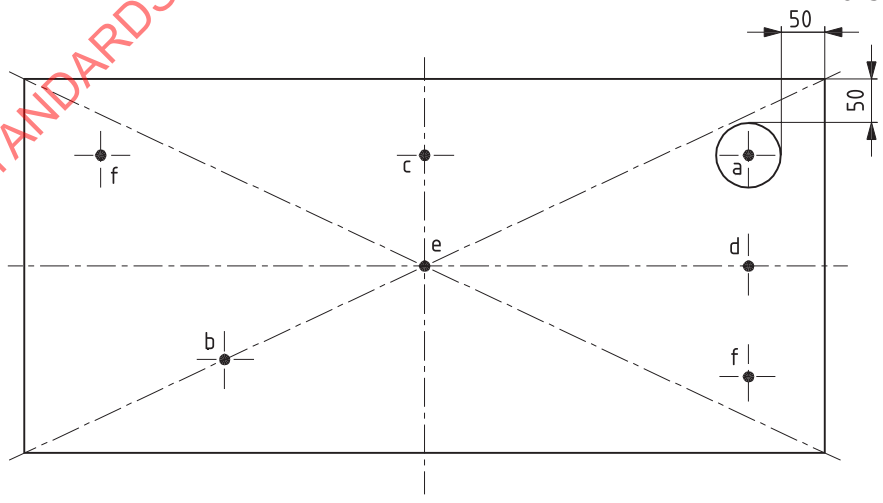

Figure 25 — Points of impact

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The horizontal distance between the side of the impacter and the outer edge of the cot base or mattress base shall be 50 mm at points a), c), d), and f).

Remove the test mattress and check if parts of the cot base or mattress base are broken, or if the cot base or mattress base has loosened from its fastening.

Carry out inspection according to 6.1.

6.8 Strength of sides and ends

6.8.1 Static load test of slats (bending test)

Position the cot on the floor (5.7) with all the legs secured by stops (5.6). Prevent the cot from tilting.

Apply a force of 250 N in turn to one slat positioned in the middle and one at the end and to any other slat likely to cause failure. The force shall act horizontally in the directions of the longitudinal and transverse axis of the cot. It shall be applied midway between the top and the bottom of the slat. The load duration shall be 30 s.

Carry out inspection according to 6.1. Record any break.

6.8.2 Strength of sides or side slats (impact test)

Position the cot on the floor (5.7) with all legs secured by stops (5.6). Prevent the cot from tilting.

Place the side impactor (5.4) so that the impact acts on the side slat or side, from both the outside and inside directions, at a height of 200 mm below the top edge of the side (see Figure 26).

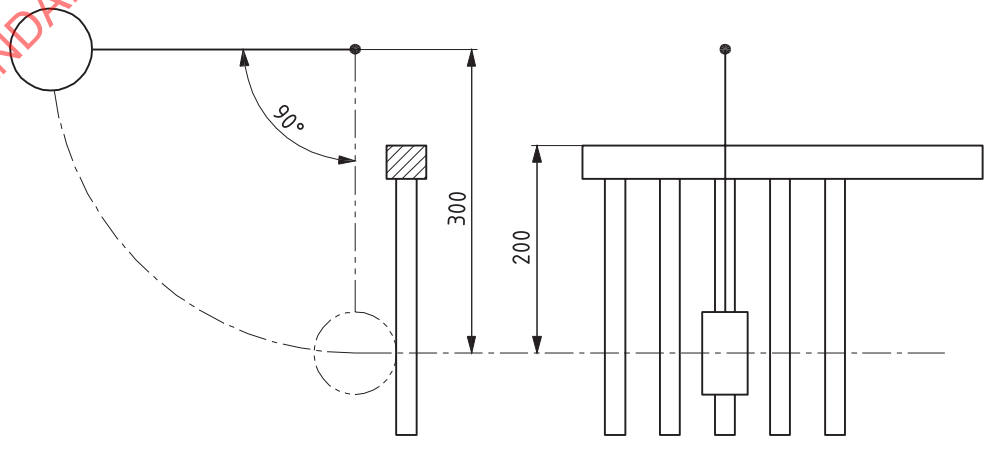
Carry out the test first from the outside and subsequently from the inside. One slat shall be hit from the outside, the next from the inside, and so forth.

When testing cots with solid sides, the impacts shall act on 10 evenly distributed positions on the long sides and four evenly distributed positions on the end sides, with the direction of impact alternating from inside to outside the cot.

Allow the impacter to swing freely from a horizontal position onto the side slat or side. Repeat 10 times, then position the impacter at the next slat or next point of impact. Continue the test until all slats or all previously determined impact points have been tested.

Carry out inspection according to 6.1.

Dimensions in millimetres



a) Side view b) Front view

Figure 26 — Impacter for sides

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