

BRITISH STANDARD

Children's beds for domestic use – Safety requirements and test methods

ICS 97.140



NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© BSI 2011

ISBN 978 0 580 71343 9

The following BSI references relate to the work on this standard:

Committee reference CW/41

Drafts for comment 08/30168262 DC

10/30219800 DC

Publication history

First published August 2008

Amendments issued since publication

Amd. no.	Date	Text affected
A1	30 April 2011	See foreword

Contents

Foreword *iii*

1	Scope	<i>1</i>
2	Normative references	<i>1</i>
3	Terms and definitions	<i>1</i>
4	General requirements	<i>2</i>
5	Chemical hazards	<i>12</i>
6	Thermal hazards	<i>12</i>
7	Mechanical hazards – gaps and openings	<i>13</i>
8	Mechanical hazards – folding	<i>17</i>
9	Mechanical hazards – crushing and shearing	<i>18</i>
10	Mechanical hazards – protruding parts	<i>18</i>
11	Mechanical hazards – entanglement in cords, ribbons and similar parts	<i>19</i>
12	Mechanical hazards – small parts	<i>19</i>
13	Mechanical hazards – suffocation	<i>20</i>
14	Mechanical hazards – edges and protruding parts	<i>21</i>
15	Mechanical hazards – points and wires	<i>21</i>
16	Mechanical hazards – inadequate structural integrity – materials and fastenings	<i>21</i>
17	Mechanical hazards – inadequate structural integrity – vertical static strength of bed base edges	<i>22</i>
18	Mechanical hazards – inadequate structural integrity – vertical impact strength of bed base	<i>22</i>
19	Mechanical hazards – inadequate structural integrity – durability of bed base	<i>23</i>
20	Mechanical hazards – inadequate structural integrity – durability of bed edge	<i>24</i>
21	Mechanical hazards – inadequate structural integrity – strength of head and foot boards	<i>25</i>
22	Mechanical hazards – inadequate structural integrity – strength of side guards and/or safety rails	<i>25</i>
23	Mechanical hazards – inadequate structural integrity – strength of top rails for four poster features	<i>26</i>
24	Product information	<i>27</i>

Bibliography *29*

List of figures

Figure 1	– Hip probe	<i>3</i>
Figure 2	– Head probe	<i>4</i>
Figure 3	– V and irregular shaped openings template	<i>4</i>
Figure 4	– Finger probe with hemispherical end	<i>5</i>
Figure 5	– Finger probe with conical end	<i>5</i>
Figure 6	– Conical probe	<i>6</i>
Figure 7	– Loop and mass	<i>7</i>
Figure 8	– Ball chain	<i>7</i>
Figure 9	– Small parts cylinder	<i>8</i>
Figure 10	– Bed base impactor	<i>9</i>
Figure 11	– Striking surface	<i>10</i>
Figure 12	– Bed base loading pad	<i>10</i>
Figure 13	– Naturalistically shaped loading pad geometry: moulded fibre glass construction	<i>11</i>
Figure 14	– Method of insertion of portion B	<i>15</i>
Figure 15	– Method of insertion of portion B	<i>15</i>
Figure 16	– Method of insertion of portion A	<i>16</i>

Figure 17 – Vertical static strength test of bed edge	22
Figure 18 – Vertical impact points	23
Figure 19 – Durability of bed base test positions	24
Figure 20 – Loading of top side rail	26
Figure 21 – Loading of top end rail	27

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 29 and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 29 August 2008. It was prepared by Technical Committee CW/41, *Child use and care articles*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

BS 8509:2008+A1:2011 supersedes BS 8509:2008, which is withdrawn.

Information about this document

This is a new standard, which has been written to cover children's beds that fall outside the scope of BS EN 716.

The start and finish of text introduced or altered by Amendment No. 1 is indicated in the text by tags **[A1]** and **[A1]**. Minor editorial changes are not tagged.

The beds covered by this standard are of two types, suitable for different age groups. These are cot beds and toddler beds, suitable for children from 18 months to 4 years, and junior beds suitable for children over 4 years. In BS 8509:2008+A1:2011, different permissible gap sizes are specified for these two bed types. This is to align the gap size requirements for junior beds with those for bunk beds specified in BS EN 747 with regard to entrapment of the head and neck and entrapment in the bed base. The committee are aware that there is a paradox between the head probes used for testing gap sizes in cot beds and toddler beds and those used for testing gap sizes in junior beds, in that a smaller head probe is used to test beds for older children than is used to test beds for younger children. The head probes used for testing cot beds and toddler beds are considered to be more realistic. However, for the purposes of aligning with existing European Standards these have not been adopted for testing junior beds.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies requirements for the safety of children's beds for domestic use with a maximum internal width of 1 000 mm and a maximum height of bed base of A_1 600 mm A_1 .

The requirements apply to children's beds that are fully assembled and ready for use.

This British Standard does not apply to A_1 beds for adults, A_1 foldaway beds, bunk and high beds, cabin/mid-height beds, children's cots, bedside cots and children's cots that allow free access for the child by means of a hinged opening or removal of some vertical bars/slats.

This standard does not cover products that have been incorporated into children's beds, for example luminaires, tables or storage furniture.

2 Normative references

The following referenced documents are indispensable for the application 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.

BS EN 71-1, *Safety of toys – Part 1: Mechanical and physical properties*

BS EN 71-2:2006, *Safety of toys – Part 2: Flammability*

BS EN 71-3, *Safety of toys – Part 3: Specification for migration of certain elements*

A_1 BS EN 120, *Wood based panels – Determination of formaldehyde content – Extraction method called the perforator method* A_1

BS EN 716 (all parts), *Furniture – Children's cots and folding cots for domestic use*

A_1 *References deleted* A_1

BS EN 1103, *Textiles – Fabrics for apparel – Detailed procedure to determine the burning behaviour*

BS EN ISO 2439:2001, *Flexible cellular polymeric materials – Determination of hardness (indentation technique)*

BS EN ISO 14184-1, *Textiles – Determination of formaldehyde – Part 1: Free and hydrolyzed formaldehyde (water extraction method)*

3 Terms and definitions

3.1 child's bed

cot bed, toddler bed or junior bed

3.2 cot bed

bed converted from a cot for use by one child aged 18 months to 4 years

3.3 toddler bed

bed for use by one child aged 18 months to 4 years with a maximum internal length of 1 500 mm

NOTE This might include child appealing designs such as cars, castles and four poster beds.

3.4 junior bed

bed for use by one child aged over 4 years

NOTE This might include child appealing designs such as cars, castles and four poster beds.

3.5 side guard

component that is higher than the mattress and extends along one side of the child's bed for about one third of the bed's total length

3.6 safety rail

component that is higher than the mattress and extends along the entire length of the child's bed, fixed to both head and foot boards

4 General requirements

4.1 Guards and safety rails

Side guards or safety rails shall not be fitted to junior beds.

NOTE Side guards and safety rails may be fitted to cot beds and toddler beds.

4.2 Mattresses

If mattress is supplied with the child's bed, the gap between the mattress and the sides and ends of the child's bed shall be no greater than 30 mm with the mattress in any position.

4.3 Cot beds

NOTE A cot may be converted into a cot bed by having either both sides or a single side completely removed and different foot and/or head boards fitted.

4.3.1 A cot bed, when assembled as a cot, shall conform to BS EN 716 and then the same sample, assembled as a cot bed, shall be assessed to this standard.

4.3.2 One sample of a cot bed shall undergo the structural integrity testing of BS EN 716 and of this standard without failure.

4.4 Test conditions

4.4.1 Tests shall be carried out in ambient conditions of 15 °C to 25 °C.

4.4.2 The tests shall be applied to children's beds that are fully assembled and ready for use.

If of knock-down type, the child's bed shall be assembled according to the manufacturer's instructions. Knock-down fittings shall be tightened before testing and not be retightened throughout the testing procedures unless this is specifically required by the manufacturer.

If the child's bed can be assembled or combined in different ways, the most onerous combinations shall be used for each test.

4.4.3 Unless otherwise stated, tests shall be carried out on the same sample in the order listed in this standard.

4.5 Apparatus

4.5.1 Unless otherwise stated, the following tolerances shall apply.

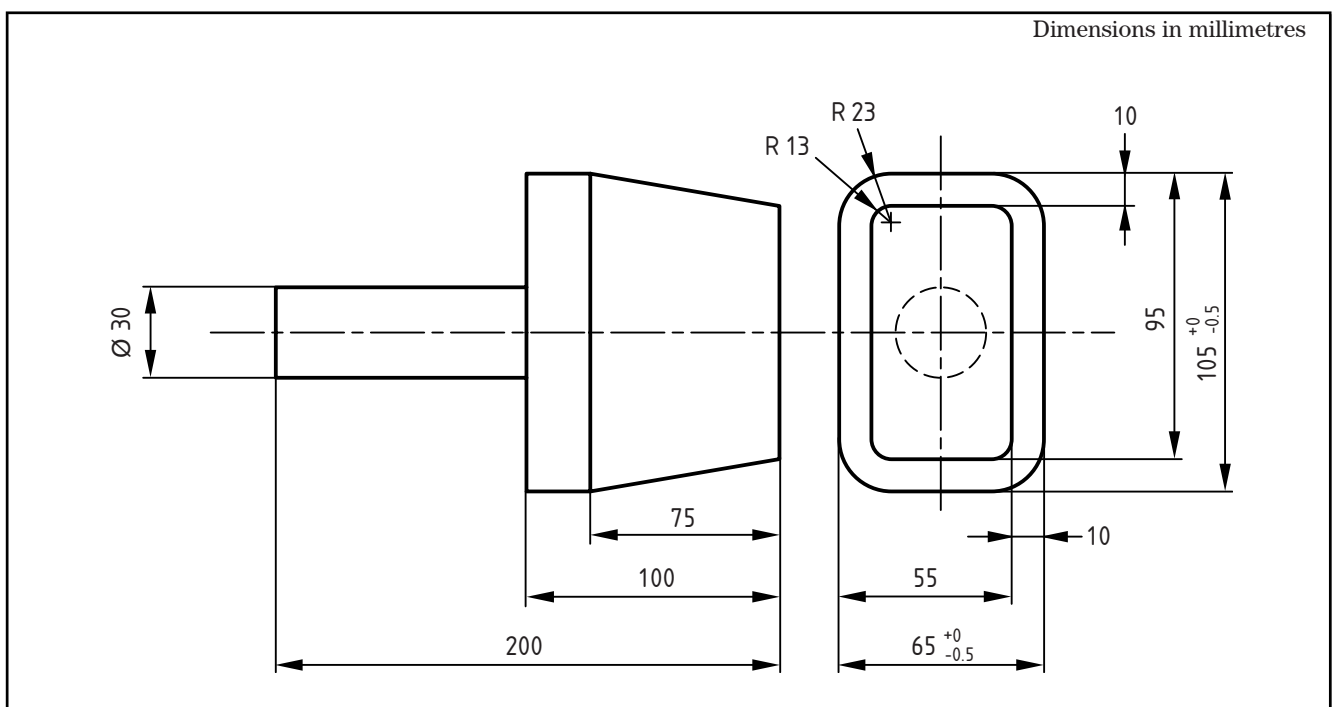
- Forces: $\pm 5\%$ of the nominal force.
- Masses: $\pm 0.5\%$ of the nominal mass.
- Dimensions: ± 1.0 mm of the nominal dimension.
- Angles: $\pm 2^\circ$ of the nominal angle.
- Positioning of loading pads: ± 5 mm.
- Duration of forces: $2 \text{ s} \pm 1 \text{ s}$ for durability tests/ $10 \text{ s} \pm 2 \text{ s}$ for static load tests.

NOTE 1 The tests are described in terms of the application of forces, however masses can be used.

NOTE 2 Unless otherwise specified, the test forces may be applied by any suitable device which does not adversely affect the results.

4.5.2 *Hip probe*, made from plastics or other hard, smooth material with the dimensions given in Figure 1.

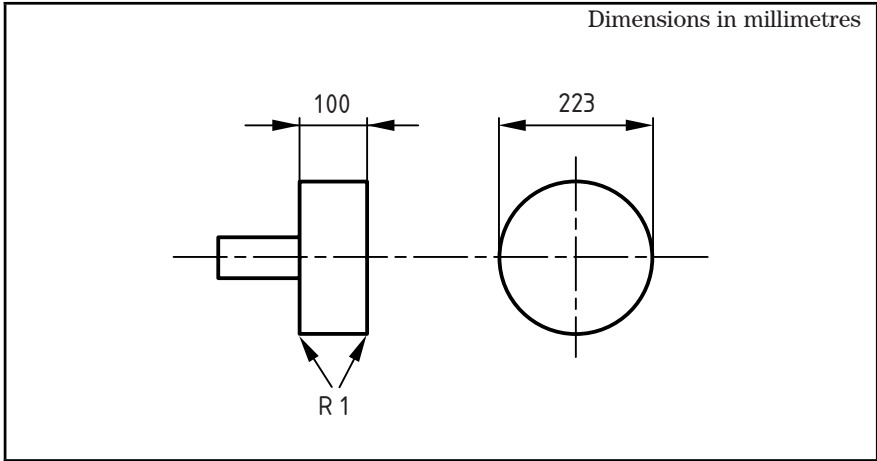
Figure 1 **Hip probe**



4.5.3 *Head probe*, made from plastics or other hard, smooth material with the dimensions given in Figure 2.

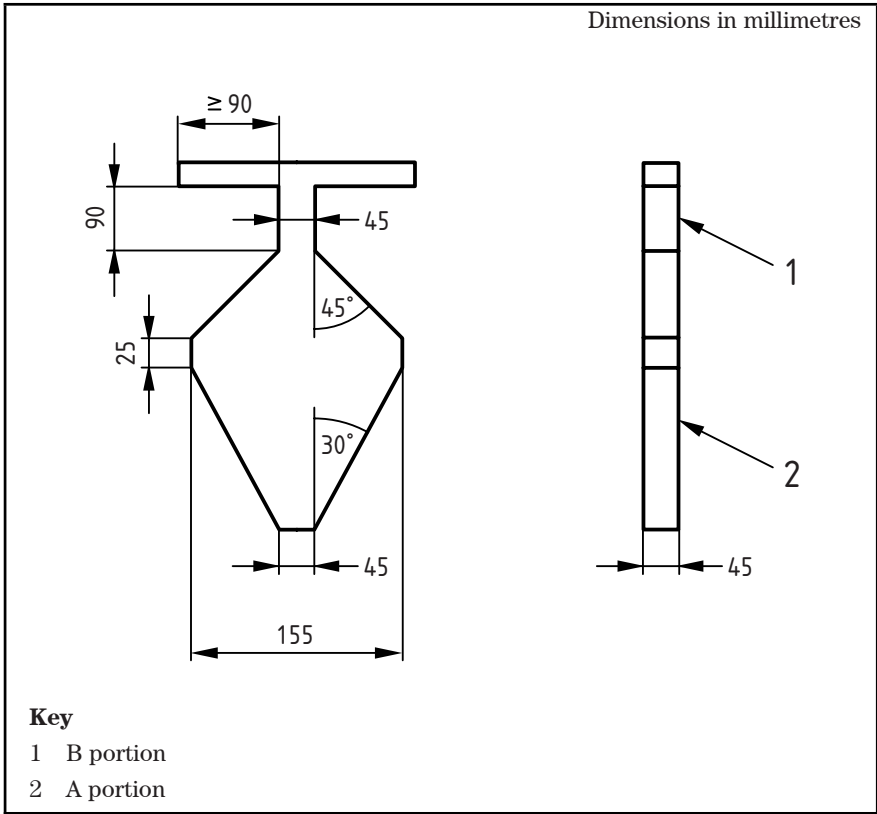
4.5.4 *Circular probe*, with the same characteristics as the head probe specified in **4.5.3**, but with a diameter of 200 mm.

Figure 2 Head probe



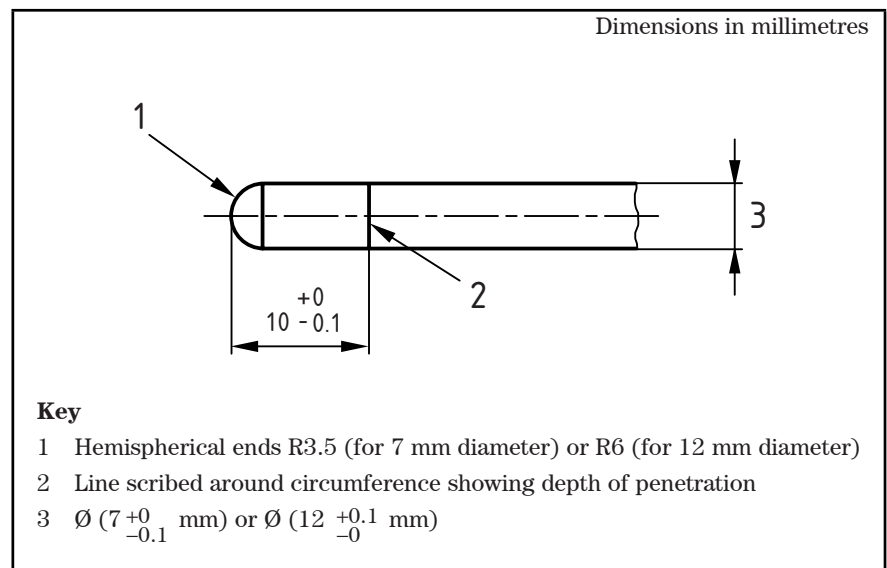
4.5.5 *V and irregular shaped template*, made from plastics or other hard, smooth material with the dimensions given in Figure 3.

Figure 3 V and irregular shaped openings template



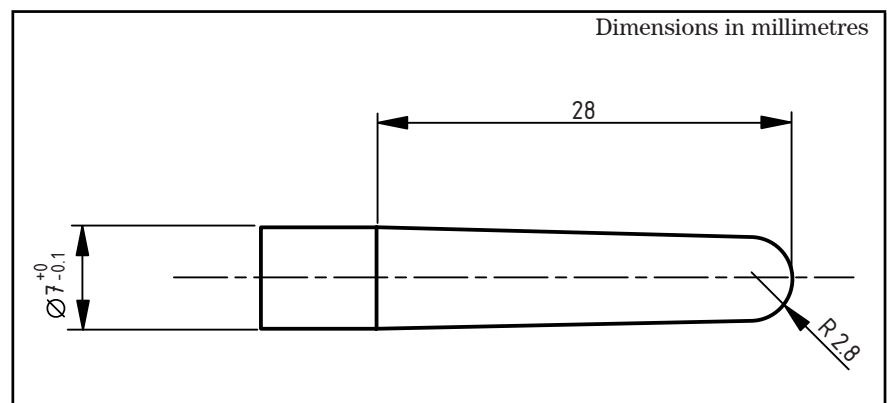
4.5.6 *Two finger probes with hemispherical ends*, one of 7 mm diameter and the other 12 mm, made from plastics or other hard smooth material (see Figure 4), and capable of being mounted on a device for exerting force in such a way that the hemispherical ends can be presented to openings.

Figure 4 Finger probe with hemispherical end



4.5.7 *Finger probe with a conical end*, of 7 mm diameter, made from plastics or other hard smooth material (see Figure 5), and capable of being mounted on a device for exerting force in such a way that the conical end can be presented to openings.

Figure 5 Finger probe with conical end



4.5.8 *Five probes with conical ends*, made of plastics or other hard, smooth, material, and capable of being mounted on a device for exerting force in such a way that the conical ends can be presented to openings, each with:

- a) an angle of $30^\circ \pm 0.5^\circ$; and
- b) diameters of $12^{+0.1}_{-0}$ mm, $25^{+0}_{-0.1}$ mm, $60^{+0.1}_{-0}$ mm, $75^{+0}_{-0.1}$ mm, and $85^{+0}_{-0.1}$ mm, respectively (see Figure 6). **A1**