
**Furniture — Children's high chairs —
Part 2:
Test methods**

*Ameublement — Chaises hautes pour enfants —
Partie 2: Méthodes d'essai*

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ISO 9221-2:2015

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 136, *Furniture*.

This second edition cancels and replaces the first edition (ISO 9221-2:1992), which has been technically revised.

ISO 9221 consists of the following parts, under the general title *Furniture — Children's high chairs*:

- *Part 1: Safety requirements*
- *Part 2: Test methods*

Introduction

This part of ISO 9221 has been prepared in order to specify test methods to provide assurance that children's high chairs comply with the requirements in ISO 9221-1.

The tests are designed to evaluate properties without regard to materials, design/construction, or manufacturing processes.

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Furniture — Children's high chairs —

Part 2: Test methods

1 Scope

This part of ISO 9221 specifies test methods for the assessment of the requirements of children's high chairs.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7619-2, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 2: IRHD pocket meter method*

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3 Terms and definitions (standards.iteh.ai)

For the purposes of this document, the following terms and definitions apply.

3.1

children's high chair

free standing chair that elevates the child to approximately dining table height, intended for holding the child from 6 months to 36 months of age who is capable of remaining in a sitting position due to his or her own coordination

3.2

crotch restraint

strap or bar passing between the legs of the child which prevents the child from slipping forward out of the high chair

3.3

integral harness

assembly intended to retain the child in the high chair comprising either a crotch restraint, waist strap and shoulder straps or comprising straps that pass over the child's shoulders and between the child's legs

3.4

waist belt

strap, which when fastened, fully surrounds the child's waist

3.5

waist strap

strap, which when fastened, goes from one side of the child to the other passing in front of the child's waist

3.6

opening

space between structural members or components

3.7
shear and squeeze points
gaps which can cause harm to parts of the body and which occur when two parts close together or open during relative movements

3.8
locking device
device which is mounted on a frame and which will maintain parts of the frame in position of use

3.9
locking mechanism
mechanism composed by a locking device and one or more operating devices

Note 1 to entry: An action deactivates the locking devices, e.g. pushing a button, pressing a lever or turning a knob.

3.10
junction line
intersection of the seat and the backrest

Note 1 to entry: See [Figure 1](#).

Note 2 to entry: The method for determining the junction line can be found in [4.2](#).

4 General test conditions

4.1 Preliminary preparation
The tests are designed to be applied to a high chair that is fully assembled according to the manufacturer's instructions and ready for use.

If the product can be converted to other products not falling within the scope of this part of ISO 9221 (e.g. table and small chair, adult chair, swings, booster seats, etc.), these configurations shall not be tested according to this part of ISO 9221.

The tests shall be carried out in indoor ambient condition with a temperature between 15 °C and 25 °C. If the temperature lies outside this range, its maximum and minimum shall be recorded in the test report.

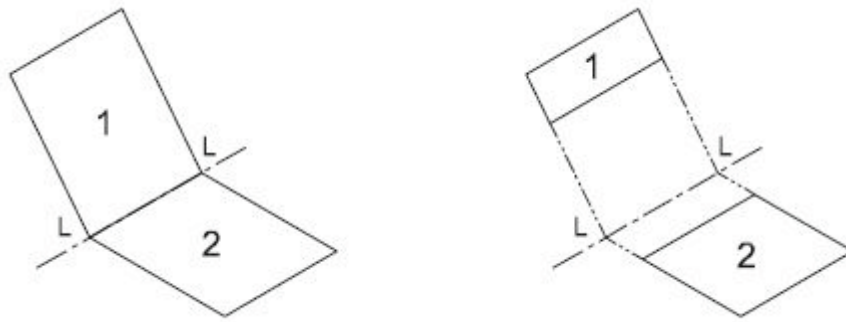
The high chair shall be tested as delivered. If the high chair is a knock-down type, it shall be assembled according to the instructions supplied with it. If the instructions allow for different adjustments or configurations of components (e.g. inclination of the backrest, height of the seat, position of the tray, position of castors/wheels, etc.), the most onerous combination shall be used for each test.

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

4.2 Determination of the junction line

The junction line is shown in [Figure 1](#).

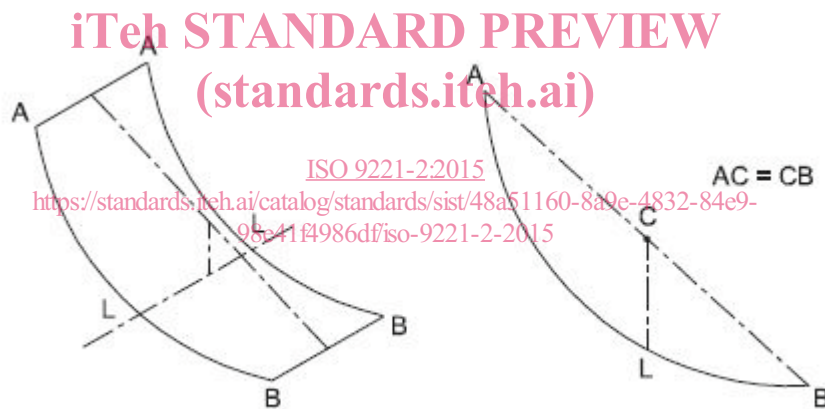
Where the backrest and the seat do not meet, the junction line is the projection of the backrest onto the seat (see [Figure 1](#)).

**Key**

- LL junction line
- 1 backrest
- 2 seat

Figure 1 — Junction line

When the seat unit is in the form of a hammock, then a theoretical junction line, “LL”, is determined as shown in [Figure 2](#). The junction line may vary when the backrest is adjusted in different positions.

**Key**

- AA top edge of the backrest
- BB front edge of the seat
- LL junction line
- CL vertical projection of C on the hammock

Figure 2 — Junction line for seat units in form of a hammock**4.3 Test sequence**

All tests shall be carried out on one sample and in the order laid down in this part of ISO 9221 except for the test in [6.9](#), which shall be performed at the end of the whole test procedure.

4.4 Tolerances

Unless otherwise stated, the following tolerances apply:

- Forces: $\pm 5\%$;
- Masses: $\pm 0,5\%$;
- Dimensions: $\pm 1,0$ mm;
- Angles: $\pm 2^\circ$;
- Positioning of loading pads: ± 5 mm.

The forces may be replaced by masses. The relationship of $10\text{ N} = 1\text{ kg}$ shall be used.

5 Test equipment

5.1 General

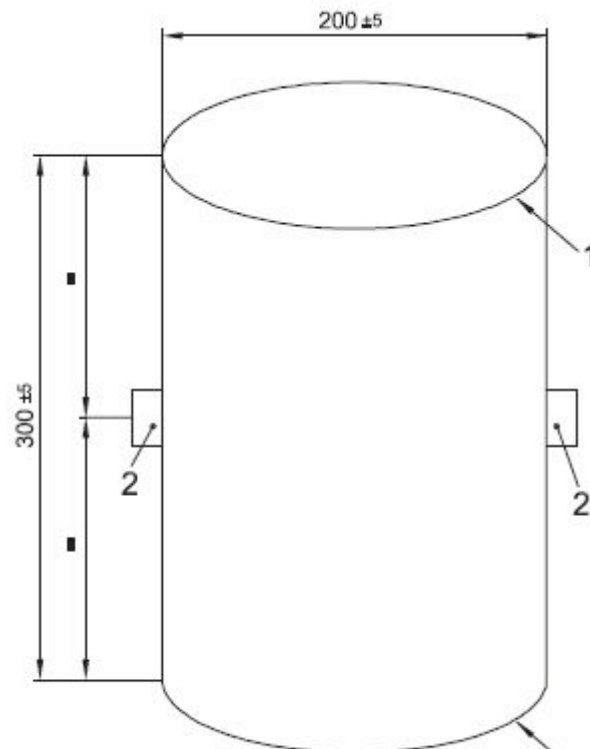
Unless otherwise specified, test forces may be applied by any suitable device because results are dependent only upon correctly applied forces and not upon the apparatus.

The test forces in the static load tests shall be applied sufficiently slowly to ensure that negligible dynamic forces are applied.

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5.2 Test dummy

A rigid 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. Two safety harness anchorage points shall be provided. These shall be positioned 150 mm from the base and 180° to each other around the circumference (see [Figure 3](#)).



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Key

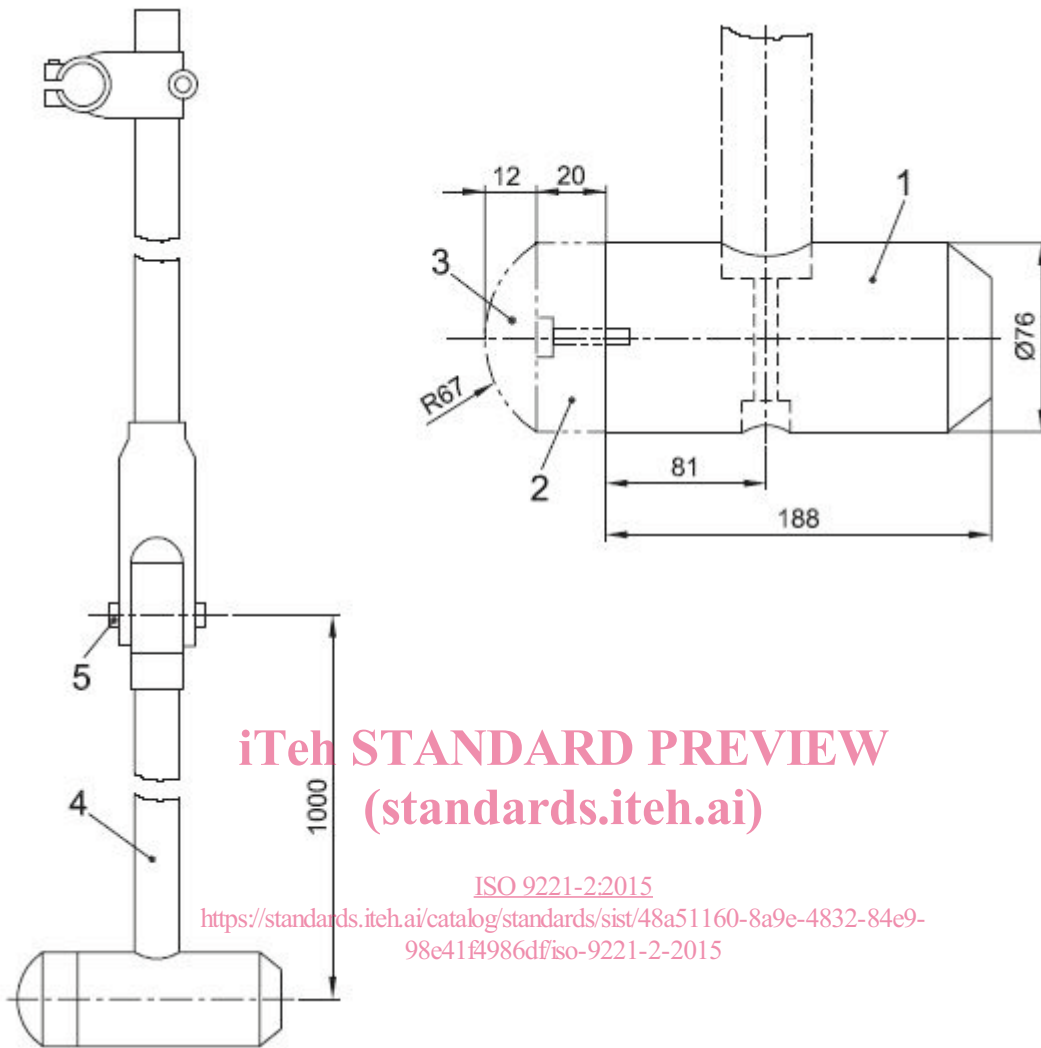
- 1 top edge of the backrest
2 front edge of the seat
- ISO 9221-2:2015
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Figure 3 — Test dummy

5.3 Impact hammer

A striker in the form of a cylindrical object having a total mass of 6,5 kg, supported from a pivot by a steel tube of 38 mm in diameter and with a wall thickness of 2 mm (see [Figure 4](#)). The distance between the pivot and the centre of gravity of the striker shall be 1 000 mm. The pendulum arm shall be pivoted by a low friction bearing.

Dimensions in millimetres



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Key

- 1 pendulum head, steel mass 6,4 kg
- 2 hardwood
- 3 rubber 50 IRHD (see ISO 7619-2)
- 4 pendulum arm, length 950 mm; high tensile steel tube Ø 38 mm × 2 mm; mass 2 kg ± 0,2 kg
- 5 pivot point

Mass of assembly (Pos. No 1,2 and 3): 6,5 kg ± 0,07 kg

Figure 4 — Impact hammer

5.4 Loading pad

A rigid cylindrical object 100 mm in diameter having a smooth hard surface and rounded edges with radius of 12 mm.

5.5 Small loading pad

A rigid cylindrical object 30 mm in diameter and at least 10 mm in thickness having a smooth hard surface and rounded edges with radius of (0,8 ± 0,3) mm.