



SLOVENSKI STANDARD

SIST ENV 1178-2:1996

01-april-1996

**Pohištvo - Otroški visoki stoli za domačo uporabo - 2. del: Preskusne metode
(modificiran ISO 9221-2)**

Furniture - Children's high chairs for domestic use - Part 2: Test methods (ISO 9221-2 modified)

Möbel - Kinderhochstühle für den Wohnbereich - Teil 2: Prüfverfahren (ISO 9221-2: modifiziert)

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Ameublement - Chaises hautes pour enfants a usage domestique - Partie 2: Méthodes d'essai (ISO 9221-2 modifiée)

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ICS:

97.140

Pohištvo

Furniture

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en

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EUROPEAN PRESTANDARD

ENV 1178-2

PRÉNORME EUROPÉENNE

EUROPÄISCHE VORNORM

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English version

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- Part 2: Test methods (ISO 9221-2 modified)**

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CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Prestandard has been prepared by the Technical Committee CEN/TC 207 "Furniture", the secretariat of which is held by IBN.

This European Prestandard is based on ISO/DIS 9221-1.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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0 Introduction

This part of ENV 1178 has been prepared in order to provide assurance that high chairs complying with the requirements in part 1 are reasonably safe.

It describes a number of tests consisting of the application, to various parts of the item, of forces simulating normal functional use, as well as misuse that can reasonably be expected to occur.

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

1 Scope

This part of ENV 1178 prescribes test methods that assess the safety of high chairs for domestic use.

Such chairs may be convertible to low chairs, low chairs and tables, baby walking frames, pushchairs, swings, car chairs or reclining low chairs. These additional functions are not covered by this standard.

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

NOTE : The test results are only valid for the article tested. When the test results are intended to be applied to other, similar articles, the test specimen should be representative of the production model.

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

2 Normative references

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revisions. For undated references the latest edition of the publication referred to applies.

ENV 1178-1:1994 Furniture - Children's high chairs for domestic use - Part 1: Safety requirements

3 General

Unless otherwise stated, all forces shall have an accuracy of $\pm 5\%$, all masses an accuracy of $\pm 0,5\%$ and all dimensions an accuracy of $\pm 0,5$ mm.

Before any of the tests described in this part of prEN 1178 are commenced, the item shall be old enough to ensure that it has developed its full strength. At least four weeks in normal indoor conditions shall have elapsed between manufacture and testing in the case of glued joints.

Immediately before testing, the chair shall be stored for at least one week in a standardized atmosphere with a temperature of $(23 \pm 2)^\circ\text{C}$ and a relative humidity of $(50 \pm 5)\%$.

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

Knock-down fittings shall be tightened before testing.

If the high chair is constructed with an adjustable angle backrest, the strength and stability tests shall be carried out with the backrest in its most adverse position for each test (normally fully reclined).

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4 Test equipment

NOTE : Unless specified otherwise, 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.

4.1 Test dummy

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 edges shall have a minimum 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.

4.2 Strength impact hammer

A striker in the form of a cylindrical object having a mass of 6,5 kg, supported from a pivot by a steel tube of 38 mm in diameter and with a wall thickness of 1,6 mm. The distance between the pivot and the centre of gravity of the striker shall be 1000 mm. The pendulum arm shall be pivoted by a low friction bearing.

NOTE : The essential details of an apparatus meeting these requirements are given in figure 1.

4.3 Loading pad

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

4.4 Stops to prevent the article from sliding but not tilting, no higher than 12 mm except in cases where the design of the item necessitates the use of higher stops, in which case the lowest stops that will prevent the item from moving shall be used.

4.5 Floor surface, horizontal, flat, rigid.

4.6 Beam, 900 mm long with a mass of 0,45 kg \pm 0,01 kg.

4.7 G-clamp, with a mass of 0,25 kg \pm 0,05 kg.

4.8 Hook, with a mass of 1,00 kg \pm 0,05 kg.

4.9 Force-measuring device.

4.10 Testload, 5 kg mass steel cylinder with 100 mm diameter.

4.11 Cylinder, for assessment of small components, having main dimensions in accordance with figure 2.

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5 Procedures

5.1 Assembly and inspection before test

Assemble the high chair in accordance with the manufacturer's instructions. Prior to the test, inspect the high chair visually for defects.

5.2 Inspection of workmanship

Inspect the specimen to determine whether exposed edges, screws, bolts, zips and other fittings are rounded or chamfered and free of burr and sharp edges.

5.3 Test of fastening devices of locking mechanisms

Operate (close and open) the locking mechanism 300 times. After this test, measure the force needed for the operation.

In case of revolving elements, measure the tangential force.

5.4 Detachable parts

Apply a tensile force to the component to be tested through a clamp or by other 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 a force gradually over 5 s and maintain for 10 s. If the component has become detached, place it in the cylinder.

Examine whether the component fits wholly within the cylinder (see 4.11).

5.5 Strength of harness attachments

Apply a force of 150 N for 1 min in the direction most likely to cause failure to each of the harness attachment points, with the seat of the high chair held rigidly so that the chair is in an upright position.

5.6 Strength of crotch strap or bar

Apply a force of 150 N with negligible dynamic load for 1 min in the direction most likely to cause failure.

5.7 Strength of adjustable back mechanism

With the base of the reclining chair secured to the floor apply a vertical force of 100 N to the top edge of the back rest for 1 h in the middle and the two extreme positions.

5.8 Tray drop test

Remove the tray from the high chair. Drop the tray through a height of 1000 mm onto the floor, on each of the following: one long edge, one short edge, the flat bottom, adjacent to the fastening points and any other point judged likely to be damaged by the test.

5.9 Tray strength test

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With the tray on the high chair, securely affix the seat of the high chair so that it cannot move in the direction of the force being applied. Apply in turn a horizontal force of 200 N to the tray in the following positions:

- a) at the centre of the front edge fore and aft at its uppermost surface;
- b) outwards at the centre of each side at its uppermost surface.

The test force is applied gradually over a period of 1 s and then maintained for 30 s.

Carry out this test 10 times.

5.10 Test for folding high chairs

With the tray in position place the test dummy (4.1) on the seat. Apply a force of 200 N to the outer end of the tray (see figure 3) or to the nearest appropriate structure, if the tray is not fitted, in the direction most likely to fold the chair.

Carry out this test 10 times.

Repeat the test with the load in any other position or direction likely to fold the chair.

5.11 Seat vertical static load test

Place the high chair in an upright position with all its legs on the floor. Place a mass of 40 kg, distributed over an area of 150 mm in diameter in the centre of the seat. Maintain the load for 1 min. Lift the high chair by its arms for 1 min. Remove the load.

5.12 Footrest : vertical static load test

Place a mass of 20 kg, distributed over an area of 75 mm x 150 mm on the centre of the footrest. Maintain the load for 1 min. Remove the load.

5.13 Tray : vertical static load test

Place a mass of 20 kg, distributed over an area of 75 mm x 150 mm on the centre of the tray. Maintain the load for 1 min. Remove the load.

5.14 Frame, impact strength test

Put the chair in an upright position with the legs against stops, opposite to the direction of the force. If there is a tray it shall be removed or left on according to which is most likely to cause failure. Allow the impact hammer specified in 4.2 to strike the centre of the uppermost point of the back, front and sides from the outside by allowing the impact hammer to fall from a height (h in figure 4) of drop of 116 mm (see figure 4).

When the back is at least 40 mm higher than the front part, repeat the test from the inside in the same manner as above.

Carry out the test 10 times in each direction.

5.15 Stability test

5.15.1 Positioning

Place the high chair in an upright position with all its legs on a horizontal floor (4.5).

If the high chair is likely to slide during the tests, place stops (4.4) on the floor against the appropriate leg or legs in a manner that will prevent the chair from sliding on the floor but will not prevent it from overturning.

NOTE : If failure occurs during the other tests in this standard which affects the stability of the high chair, another specimen shall be submitted for this test.