SLOVENSKI STANDARD
SIST EN 1728:2002

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Pohištvo za domačo uporabo - Sedežno pohištvo - Preskusne metode za ugotavljanje trdnosti in trajnosti

Domestic furniture - Seating - Test methods for the determination of strength and durability

Möbel für den Wohnbereich - Sitzmöbel - Prüfverfahren zur Bestimmung der Festigkeit und Dauerhaltbarkeit

Mobilier domestique - Sieges - Méthodes d'essais pour la détermination de la résistance et la durabilité de la structure

Ta slovenski standard je istoveten z: **EN 1728:2000**

ICS:

97.140	Pohištvo	Furniture

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EUROPEAN STANDARD
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English version

Domestic furniture - Seating - Test methods for the determination of strength and durability

Mobilier domestique - Sièges - Méthodes d'essais pour la détermination de la résistance et la durabilité de la structure

Möbel für den Wohnbereich - Sitzmöbel - Prüfverfahren zur Bestimmung der Festigkeit und Dauerhaltbarkeit

This European Standard was approved by CEN on 6 May 1999.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents list

Foreword

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

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2001, and conflicting national standards shall be withdrawn at the latest by June 2001.

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

1. Scope

This European Standard specifies test methods for determining the strength and durability of the structure of all types of indoor domestic seating for adults without regard to materials, design/construction or manufacturing processes.

Test methods for the assessment of ageing and degradation are not included. The tests are not intended to assess the durability of upholstery materials, such as upholstery filling materials and upholstery covers nor are they intended to assess the durability of mechanisms such as those used in convertible sofa beds and reclining and tilting chairs.

The tests are designed to be applied to an article of furniture that is fully assembled and ready for use.

Not all tests are necessarily applicable to all types of seating.

The Standard does not include any requirements. Safety requirements are specified in EN 12520

2. References

2.1 Normative references

This draft European standard 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 draft European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 1335-3 Office Furniture - Office work chair : Part 3 : Safety test methods

ISO 48: Rubber, vulcanized of thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)

ISO 2439: Polymeric materials, cellular flexible - Determination of hardness (indentation technique)

2.2 Informative references

EN 12520 Domestic Furniture - Seating - Mechanical and Structural Safety requirements

3. Definitions

For the purposes of this draft European Standard, the following definitions apply.

3.1 Static tests: Tests consisting of heavy loads being applied a few times to ensure that the furniture has sufficient strength under the highest levels of loading that might reasonably be expected to occur.

3.2 Impact tests: Tests to assess the strength of the article under shock loading that might reasonably be expected to occur.

3.3 Fatigue tests: Tests simulating the repeated application of loads or movement of components occurring during long-term functional use.

3.4 Structure : The load bearing parts of furniture such as the frame, seat, back and arm supports and suspension.

3.5 Leg rest: An extension of the seat area intended to support the legs of the sitter. A leg rest may or may not be permanently attached to the seat.

3.6 Foot rest: A part intended to support the feet of the sitter. A foot rest may or may not be permanently attached to the structure of the seating.

3.7 Foot rail: A horizontal bar or rung intended as an occasional support for the feet or to assist getting on and off a high chair or stool. A foot rail may be a part of the structure of the underframe of a chair or stool.

4. General Test Conditions

4.1 Preliminary preparation

Before any of the tests 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 in timber and the like.

The furniture shall be tested as delivered. Knock-down furniture shall be assembled according to the instructions supplied with it. If the furniture can be assembled or combined in different ways, the most adverse combination shall be used for each test. Knock-down fittings shall be tightened before testing. Further tightening shall not take place unless specifically required by the manufacturer.

The sample for test shall be stored in indoor ambient conditions for at least one week immediately prior to testing - any deviation from this procedure shall be recorded in the test report.

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

4.2 Application of forces

The test forces in durability and static load tests shall be applied sufficiently slowly to ensure that negligible dynamic load is applied. The forces in fatigue tests shall be applied sufficiently slowly to ensure that kinetic heating does not occur.

Unless otherwise stated static loads shall be maintained for 10± 2 seconds. Unless otherwise stated fatigue loads shall be maintained for 2± 1 seconds.

4.3 Determination of seat and back loading points

The seat and back loading points shall be determined using the template as specified in 5.2 in the manner specified in 4.3.1 or 4.3.2. In some cases it may not be possible to determine the loading points by means of the template. In such cases, points 175 mm forward of the seat/back junction and 300 mm upward from the seat/back junction, shall be used.

If the number of seats in the article is not obvious, divide the total seat length (in mm) by 600 mm and round to the nearest whole number to determine the number of seats. Divide the total seat length into seats of equal length.

4.3.1 Chairs and settees

Position the template (5.2) with its load applied at the seat loading point on the centreline of the seat as far towards the rear as possible. Adjust its position by pushing the back loading portion into the back, so levering the seat portion forwards until the shape of the template correlates with that of the seat (see Figure 1a). In cases where the template can be settled in more than one position, the position having the smallest angle between the seat and back portions of the template shall be used. The angle shall in no cases be less than 90°. Mark the required loading positions from the template. If relevant repeat the procedures on the other seat(s).

4.3.2 Stools and benches

Set up the template (5.2) at 90° with the aid of the mark as shown in Figure 3. Place it on each seating position as shown in Figure 1a. Mark the required loading point from the template.

4.4 Determination of Back Angle

The angle of inclination of the back from the horizontal (∅) shall be measured by determining the slope of the straight edge of the relevant portion of the seat loading point template when it is correctly positioned (see Figure 1b).

4.5 Tolerances

For tolerances, unless otherwise stated:

- all forces shall have an accuracy of ± 5% of the nominal force;
- all masses an accuracy of ± 0.5% of the nominal mass;
- all dimensions an accuracy of ± 1.0 mm of the nominal dimension;
- all angles an accuracy of ±2°

The tolerance for positioning of loading pads shall be ± 5 mm.

5. Test Equipment and Apparatus

5.1 General The tests may be applied by any suitable device because results are dependent only upon correctly applied loads and not upon the apparatus, except in the case of impact tests where the apparatus described in 5.12 and 5.13 shall be used and the arm fatigue test where the apparatus described in 5.14 shall be used.

The seat loading apparatus shall be such as not to restrain the chair from tilting rearwards nor hinder horizontal movement of the chair when the back load is applied.

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

5.2 Loading position template, (see Figures 2 and 3) consisting of two shaped members fastened together by a pivot at one end. The contours of the shaped surfaces are so devised as to sink into the upholstery. For this purpose the seat loading arm shall have a total mass of 20 kg, applied through the seat loading point.

The apparatus is marked as shown in Figure 3

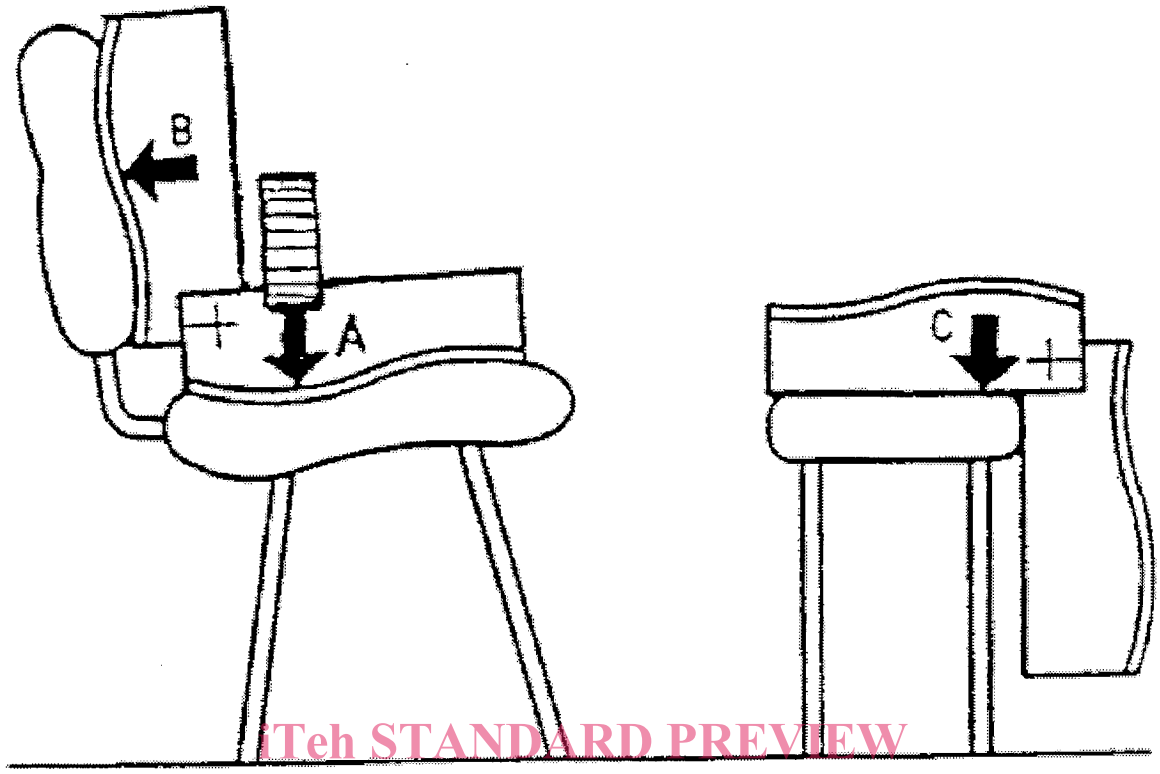


Figure 1a Position of loading point template

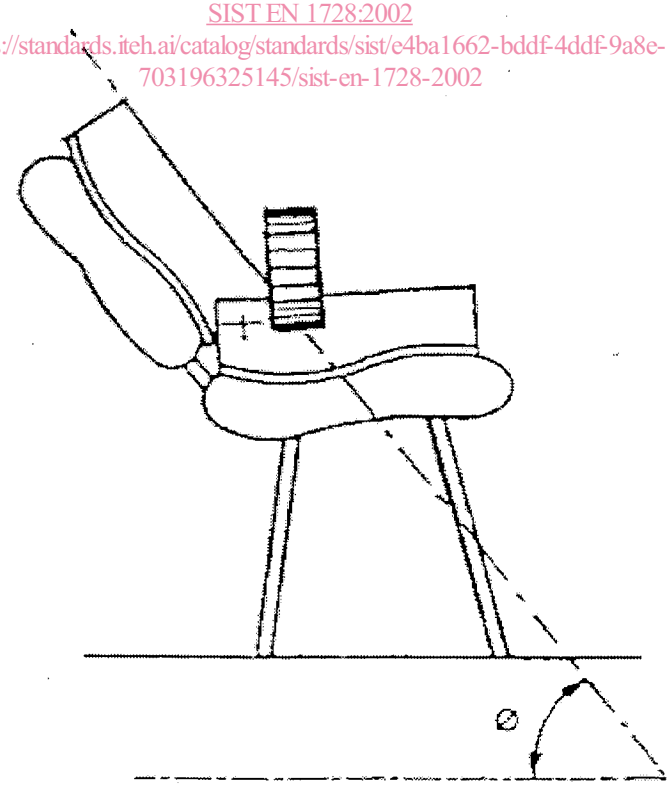
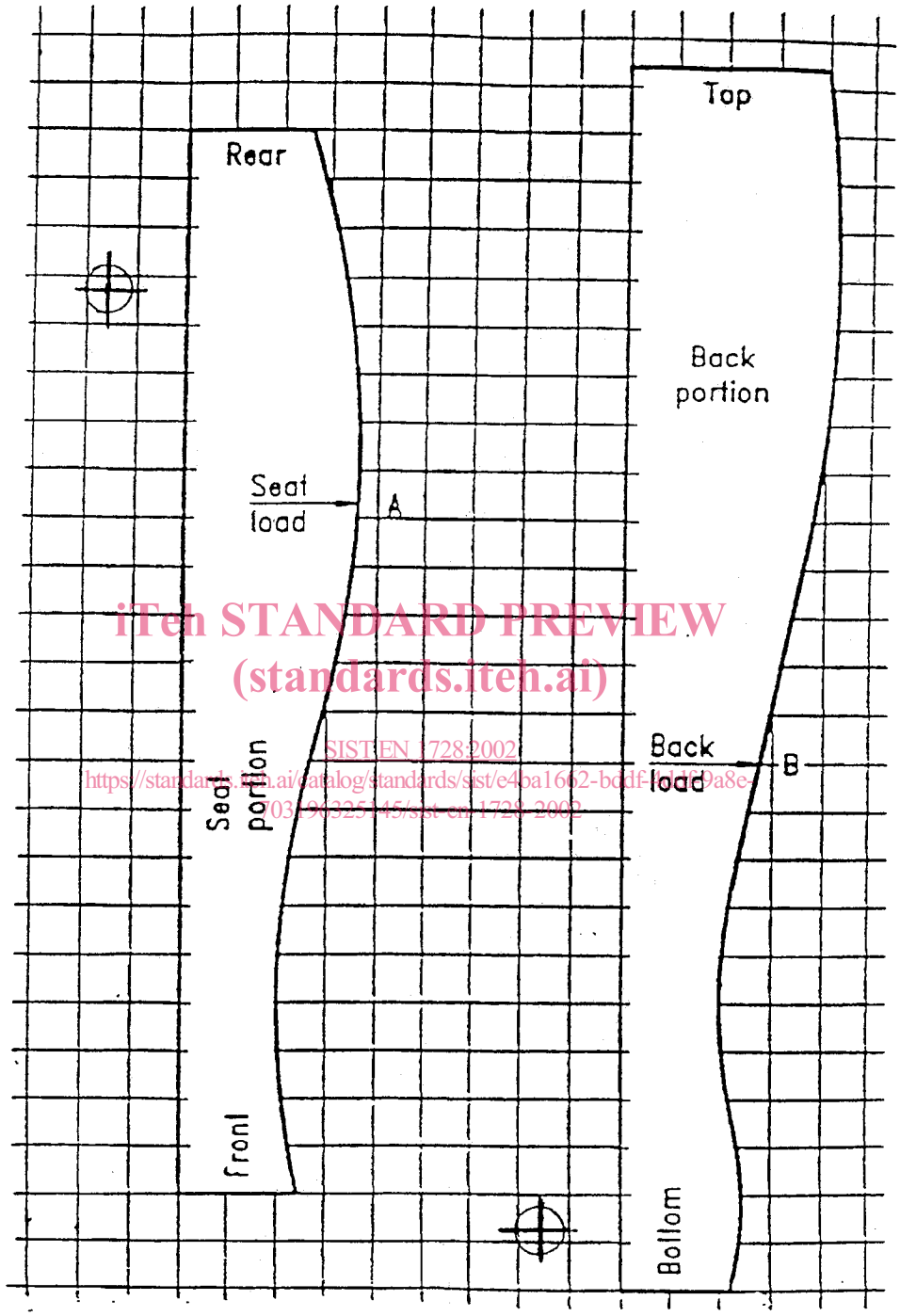


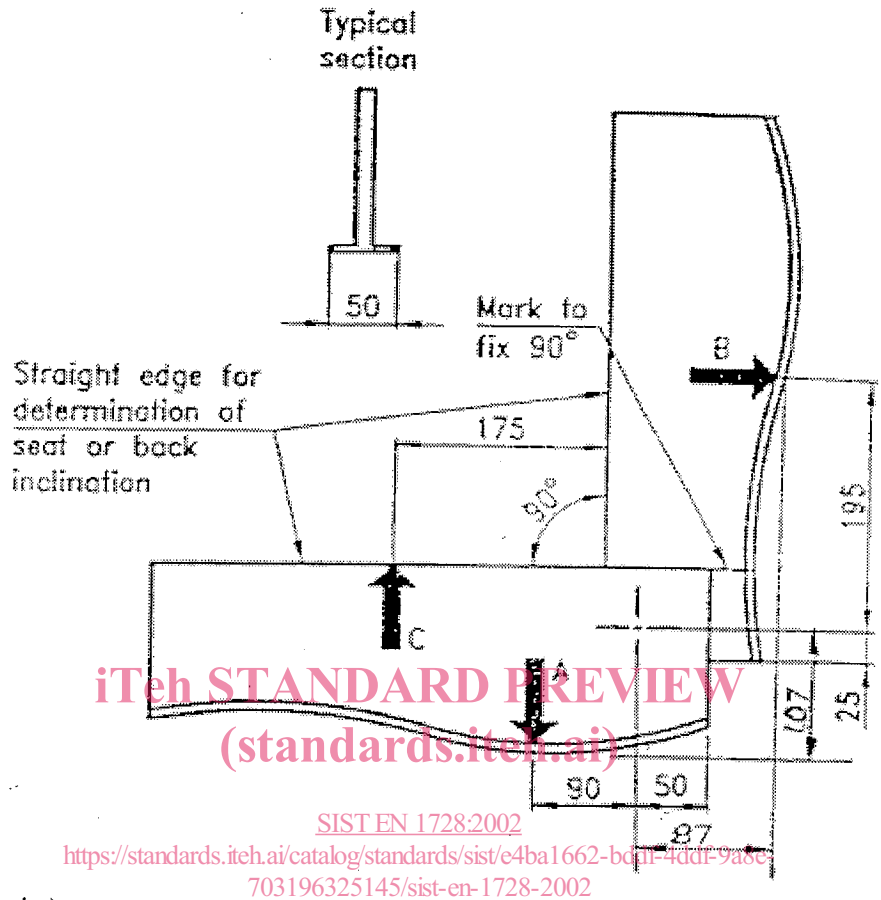
Figure 1b Determination of back angle (∅)



Scale : 1 square = 20 mm

Figure 2 Loading surface curves for seat and back loading point template

All dimensions are in millimetres



A = Seat load (chairs)
B = Back load (chairs)
C = Seat load (stools)

Figure 3 Loading point template

So that the template can be positioned easily with the two members at 90° to each other, a line is drawn on the back portion.

Loading points A and B correspond to those points on a chair being 175 mm forward of the seat and back intersection point on the seat and 300 mm upward from the seat and back intersection point on the back.

Loading point C corresponds to the point on a stool as 175 mm from one edge.

5.3 **Floor**, horizontal, flat and rigid with a smooth surface. For the drop test (6.18) a rubber mat 2 mm thick, with hardness 85 ± 5 IRHD according to ISO 48, shall be used on a concrete floor.

5.4 **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 that will prevent the item from moving shall be used.

5.5 **Seat loading pad**, naturalistically shaped rigid indenter with a hard, smooth surface having overall dimensions within the limits shown in Figure 4.

Two examples are shown in Annex A.

5.6 **Smaller seat loading pad**, rigid circular object 200 mm in diameter the face of which has a convex spherical curvature of 300 mm radius with a 12 mm front edge radius (see Figure 5).

5.7 **Back loading pad**, rigid rectangular object 200 mm high and 250 mm wide, the face of which is curved across the width of the pad with a convex cylindrical curvature of 450 mm radius and with a 12 mm radius on all front edges (see Figure 6).

5.8 **Local loading pad** (i.e. for arm and leg loading tests), rigid cylindrical object 100 mm in diameter, with a flat face and a 12 mm edge radius.

5.9 **Foam for use with loading pads**, 25 mm thick layer of polyether foam with a hardness index according to ISO 2439, method A, of (1100 ± 100) N.

For the use of the foam in the seat impact test, see 6.14.

5.10 **Double seat loading device**, two loading pads as specified in 5.5. The distance between the pads shall be adjustable so that the centres can be sited over the seat loading positions on two adjacent seats of any size of multiple seating.

5.11 **Double back loading device**, two loading pads as specified in 5.7. The distance between the pads shall be adjustable so that the centres can be sited over the back load7ng positions on two adjacent seats of any size of multiple seating.