SLOVENSKI STANDARD
SIST ENV 581-2:2001

01-februar-2001

Zunanje pohištvo - Sedežno pohištvo in mize za domačo in javno uporabo ter taborjenje - 2. del: Mehanske varnostne zahteve in preskusne metode za sedežno pohištvo

Outdoor furniture - Seating and tables for camping, domestic and contract use - Part 2: Mechanical safety requirements and test methods for sampling

Sitzmöbel und Tische für den Wohn-, Objekt- und Campingbereich - Teil 2: Mechanische sicherheitstechnische Anforderungen und Prüfverfahren für Sitzmöbel

Mobilier d'extérieur - Sieges et tables a usages domestique, collectif et de camping - Partie 2: Exigences et essais de sécurité

Ta slovenski standard je istoveten z: **ENV 581-2:2000**

ICS:

97.140	Pohištvo	Furniture
97.200.30	Oprema za taborjenje in tabori	Camping equipment and camp-sites

SIST ENV 581-2:2001 **en**

EUROPEAN PRESTANDARD

PRÉNORME EUROPÉENNE

EUROPÄISCHE VORNORM

ENV 581-2

April 2000

ICS 97.140; 97.200.30

English version

Outdoor furniture - Seating and tables for camping, domestic and contract use - Part 2: Mechanical safety requirements and test methods for sampling

Mobilier d'extérieur - Sièges et tables à usages domestique, collectif et de camping - Partie 2: Exigences et essais de sécurité mécanique des sièges

Sitzmöbel und Tische für den Wohn-, Objekt- und Campingbereich - Teil 2: Mechanische sicherheitstechnische Anforderungen und Prüfverfahren für Sitzmöbel

This European Prestandard (ENV) was approved by CEN on 6 May 1999 as a prospective standard for provisional application.

The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard.

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.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Ref. No. ENV 581-2:2000 E

Contents

Page

Foreword 2

0 Introduction 3

1 Scope 3

2 Normative references 3

3 Definitions 3

4 General test conditions 4

5 Test equipment and apparatus 7

6 Test methods and requirements 13
6.1 Stability 13
6.2 Seat strength and fatigue 14
6.3 Backrest strength and fatigue 17
6.4 Armrest strength and fatigue 21
6.5 Leg strength 24

7 Test report 26

ANNEX A (NORMATIVE) Behaviour of outdoor seating at high and low temperature 27

ANNEX B (NORMATIVE) SPECIFIC TEST METHODS AND REQUIREMENTS FOR LOUNGERS 34

ANNEX C (INFORMATIVE) Examples of seat loading pad 41

Foreword

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

This text is one part of a general standard concerning safety and performance requirements for outdoor seating and tables.

The work programme of CEN/TC 207/WG 4 includes the following parts :

EN 581-1	Outdoor furniture - Seating and tables for camping, domestic and contract use Part 1 : General safety requirements.
EN 581-3	Outdoor furniture - Seating and tables for camping, domestic and contract use Part 3 : Mechanical safety requirements and test methods for tables.
prEN 581-4	Outdoor furniture - Seating and tables for camping, domestic and contract use Part 4 : Physical characteristics - Durability.
prEN 581-5	Outdoor furniture - Seating and tables for camping, domestic and contract use Part 5 : Requirements and test methods for surfaces.
prEN 581-6	Outdoor furniture - Seating and tables for camping, domestic and contract use Part 6 : General characteristics.

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

0 Introduction

This document is published as an European prestandard so that it can be completed with specific safety requirements and test methods in preparation on deckchairs and folding chairs and in the expectation of part 4 of EN 581 ; this part will fix safety requirements and test methods for the strength under weather conditions.

1 Scope

This part of EN 581 specifies the mechanical safety requirements and test methods of outdoor seating for camping, domestic and contract use for adults, without regard to materials, design/construction or manufacturing processes.

This prestandard does not apply to outdoor furniture for severe contract use where higher requirements may be necessary and to removable upholstery and coverings, permanently fixed furniture and street furniture.

Annex A includes tests methods for assessing the behaviour of outdoor seating at high and low temperatures.

The effect of ageing and degradation caused by light and moisture has not been included.

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

EN 1022	Domestic furniture - Seating - Determination of stability
ISO 48	Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)
ISO 2439	Polymeric materials, cellular flexible - Determination of hardness (indentation technique)

3 Definitions

For the purpose of this European prestandard, the following definitions apply :

3.1 **Outdoor furniture for contract use** : Outdoor furniture intended for non-private use in places with public access, e.g. restaurants, hotels, open-air swimming pools, vocational and leisure sites. Due to this public use they are submitted to high loads.

3.2 **Outdoor furniture for domestic use** : Outdoor furniture intended for private use in places without public access e.g. garden, wintergarten, terrace, balcony, etc.

3.3 **Outdoor furniture for camping use** : In accordance with the need for easy transportation, outdoor furniture for camping use are foldable or detachable and of light-weight construction. It is intended for use in connection with camping and/or travelling.

3.4 **Stool, folding stool, camping stool** : Seating without backrest.

3.5 **Garden chair, garden folding chair, camping chair** : Seating with a backrest for upright sitting posture.

3.6 **Fixed armchair ; folding, non-adjustable armchair ; camping armchair (folding but non-adjustable)** :
Seating with backrest and armrests for upright or inclined sitting posture.

3.7 **Multi-position armchair, camping multi-position armchair** : Armchair with a backrest adjustable in inclination and fixed or adjustable seating.

3.8 **Directors' chair** : Camping folding seating with armrests and backrest. Seat and backrest are made of tightened textile material.

3.9 **Bench** : Multi-place seating with or without backrest, with or without armrests.

3.10 **Mobile lounger** : Seating intended for lying rest supplied with wheels and possibly handles, supplied with fixed or adjustable.

3.11 **Lounger** : Seating intended for reclined posture without wheels. Loungers can be foldable.

3.12 **Footrest** : Item intended to resting legs, with a fixed or adjustable height, independent or incorporated to an armchair,...

3.13 **Deck chair** : Seat with a folds flat supplied with a support made of a flexible material (ex. linen) whose adjustable structure enables various resting postures. The deck chairs can be provided with armrests or not and possibly with a fixed footrest.

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.

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 if applicable. Further tightening shall not take place unless this is specifically required by the manufacturer.

The sample for test shall be stored in indoor ambient conditions for at least 1 week immediately prior to testing. Any deviation from this procedure shall be recorded in the test report.

With the exception of tests described in the annex A, the tests shall be carried out in normal indoor ambient conditions (temperature between 15°C and 25°C). For seating including fabric parts in their construction, the humidity shall be between 55 % and 65 %.

For each test, adjustable components shall be in the most unfavourable position.

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 heating does not occur.

4.3 Determination of seat and back loading points

The seat and back loading points shall be determined using the loading point template as specified below. 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 millimetres) 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. Mark the position of each of the seats.

4.3.1 Chairs, armchairs, loungers, deck chairs

Position the template (5.1) 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 on the back, so levering the seat portion forwards until the shape of the template correlates with that of the seat (see figure 1). 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 (5.1) in order to form an angle at 90° with the 2 elements. Place it on the stool or on each sitting position as shown in figure 1. Mark the seat loading point from the template, facing mark (C).

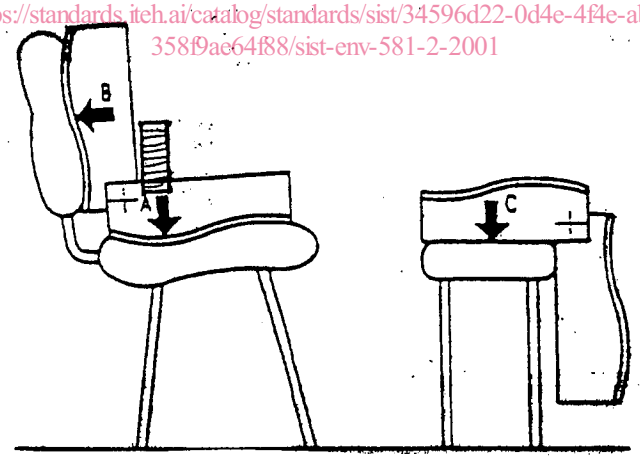


Figure 1 : Position of loading point template

4.4 Determination of seat and back angle

The angle of inclination of the back from the horizontal (θ) and, if necessary the angle of inclination of the seat from the horizontal (α), 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 2).

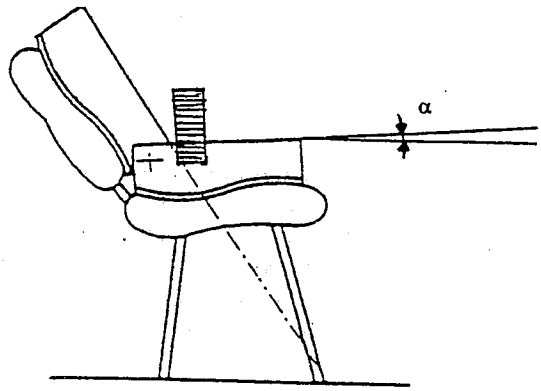


Figure 2 : Determination of back angle (θ) and seat angle (α)

4.5 Leg rests and foot rests

The loading points of a leg rest or a foot rest which are separate components, hinged or otherwise supported by the main structure, shall be determined from the centre lines of the components themselves.

When a leg rest or a foot rest is not a separate component but an extension of the seat structure, then the leg/foot rest area shall be taken as beginning at a distance of 400 mm forward of the seat loading point and the centre lines determined accordingly.

The seat front edge of chairs with extended seat structures to form a foot rest or a leg rest shall nevertheless be taken as the edge of the seat structure furthest away from the back rest.

4.6 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 mm of the nominal dimension ;
- all angles an accuracy of ± 2° of the nominal value.

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

4.7 Sequence of testing

The tests shall be carried out on the same sample in the following order :

- seat strength and fatigue ;
- backrest strength and fatigue ;
- armrest strength and fatigue ;
- leg strength ;
- stability.

5 Test equipment and apparatus

Unless otherwise stated, the tests may be applied by any suitable device because results are not dependent upon the apparatus.

In the case of designs not catered for in the test procedures, carry out the test as far as possible as described and state any deviations in the test report.

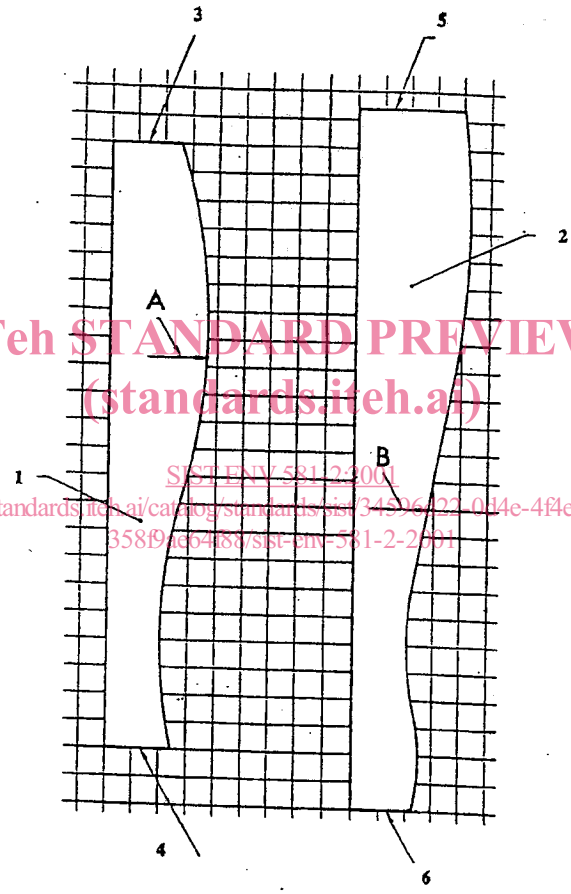
Unless otherwise stated, loading pads shall swivel and be fixed such as they do not prevent the seat from moving during the test and such as forces shall be applied on the centre line axis of the loading pads.

5.1 Loading position template :

Consisting of two shaped members (see figures 3 and 4) fastened together by a pivot at one end. The seat loading arm shall bear a total mass of 20 kg, applied through the seat loading point.

The apparatus is marked (A, B, C) as shown in figure 4.

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.

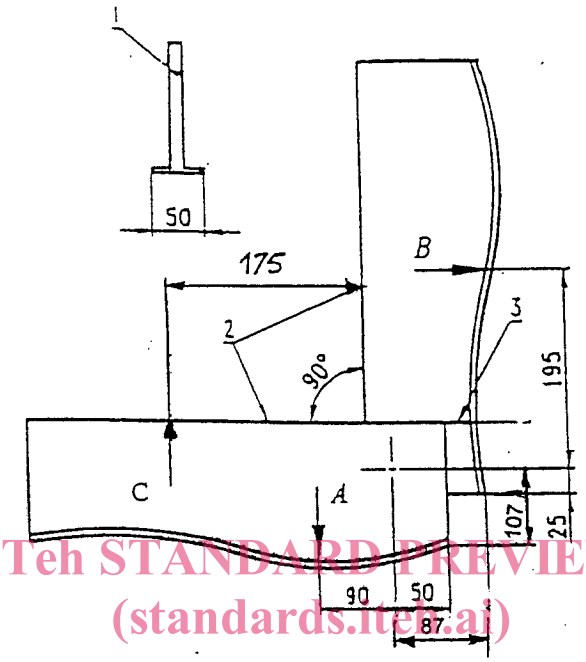


1	Seat portion	**A**	Seat load
2	Back portion	**B**	Back load
3	Rear		
4	Front		
5	Top		
6	Bottom		

Scale : 1 square = 20 mm

Figure 3 : Loading surface curves for seat and back loading point template

Dimensions in millimetres



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

1 - Section
2 - Straight edge for determination of seat and back inclination
3 - Mark to fix 90°

Figure 4 : Loading point template

5.2 Floor surface :

Horizontal, flat and rigid with a smooth surface.

5.3 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).

Dimensions in millimetres

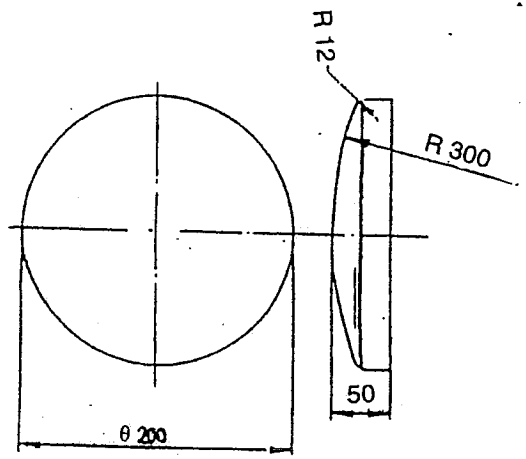


Figure 5 : Smaller seat loading pad

5.4 Seat loading pad

Naturalistically shaped rigid indentor with a hard, smooth surface.
Two examples are shown in annex C.

5.5 Back loading pad

Rigid circular 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).

Dimensions in millimetres

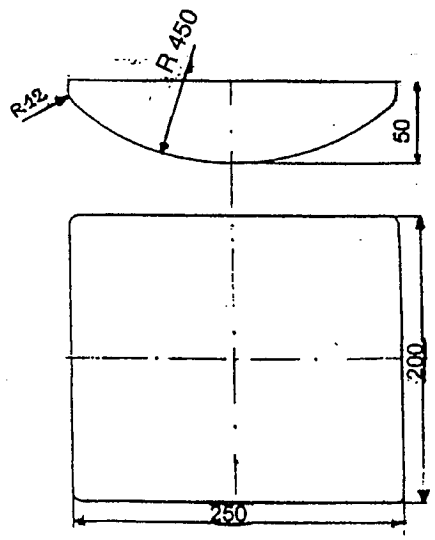
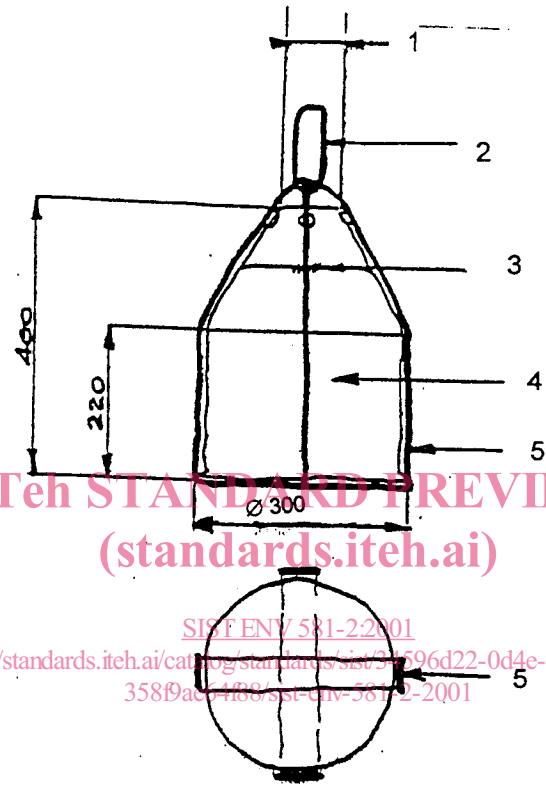


Figure 6 : Back loading pad

5.6 Mass M

Constituted of a leather bag 300 mm in diameter, 3 mm leather thickness, filled with steel shot-peen.

Dimensions in millimetres



1 Opening of the bag (∅ 200 mm)
2 Fastening
3 Closing of the bag
4 Leather bag
5 4 straps (l = 45 mm)

Figure 7 : Leather bag

5.7 Stops

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