SLOVENSKI STANDARD
SIST EN 1728:2012

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Nadomešča:
SIST EN 1728:2002

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

Furniture - Seating - Test methods for the determination of strength and durability

Möbel - Sitzmöbel - Prüfverfahren zur Bestimmung der Festigkeit und Dauerhaltbarkeit

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

Ta slovenski standard je istoveten z: EN 1728:2012

ICS:

97.140	Pohištvo	Furniture

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1728

July 2012

ICS 97.140

Supersedes EN 1728:2000

English Version

Furniture - Seating - Test methods for the determination of strength and durability

Ameublement - Sièges - Méthodes d'essais pour la détermination de la résistance et de la durabilité

Möbel - Sitzmöbel - Prüfverfahren zur Bestimmung der Festigkeit und Dauerhaltbarkeit

This European Standard was approved by CEN on 9 June 2012.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Page

Foreword

This document (EN 1728:2012) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

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 January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1728:2000.

The main changes with respect to the previous edition are listed below.

— All test methods for seating used in European Standards for furniture have been collated in one document. The document now contains methods that were previously listed in EN 581-2, *Outdoor furniture*, EN 1335-3, *Office work chair*, and EN 15373, *Non-domestic seating*.

— A static load test for headrests has been included.

— Wherever possible test methods have been simplified and clarified for ease of use.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies test methods for the determination of strength and durability of the structure of all types of seating without regard to use, materials, design/construction or manufacturing process.

This European Standard does not apply to children's highchairs, table mounted chairs and bath seats which are covered by other European Standards.

Test methods for the assessment of ageing, degradation, ergonomics and electrical functions are not included.

The test methods are not intended to assess the durability of upholstery materials, such as upholstery filling materials and upholstery covers.

This European Standard does not include any requirements. Requirements for different end uses can be found in other Standards.

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 7619-2:2010, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 2: IRHD pocket meter method*

3 Terms and definitions

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

3.1
structure
load bearing parts of furniture such as the frame, seat, back and arm supports and suspension

3.2
leg rest
extension of the seat area intended to support the legs of the user

Note 1 to entry: A leg rest might or might not be permanently attached to the structure of the item of seating.

3.3
foot rest
part intended to support the feet of the user and which assists the user getting on or off an item of seating

Note 1 to entry: A foot rest might or might not be permanently attached to the structure of the item of seating.

3.4
work chair
chair, with or without arm rests, for use by one adult in the office or home office (for example working with a computer), whose upper part, which includes the seat and back, is supported on a single column and can rotate in the horizontal plane and is at least adjustable in height

3.5
back rest
element that supports the back of the user higher than 100 mm above the seat loading point

3.6
arm rest length
distance between vertical lines through the front and rear edges of the arm rest

4 General test conditions

4.1 Preliminary preparation

The furniture shall be tested as delivered. Knock-down furniture shall be assembled according to the instructions supplied. If the instructions allow the furniture to 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.

For seating that is designed to be fixed to the structure of a building, the unit shall be mounted according to the manufacturer's instructions to a structure representative of the service installation. This structure shall be sufficiently strong and stiff to eliminate the possibility of it affecting the results of the test.

Unless otherwise specified by the manufacturer, the sample for test shall be stored in indoor ambient conditions for at least 24 h immediately prior to testing.

The tests shall be carried out at indoor ambient conditions. However, if during a test the 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 durability tests shall be applied sufficiently slowly to ensure that kinetic heating does not occur.

Unless otherwise stated, static forces shall be maintained for (10 ± 2) s. Unless otherwise stated, durability forces shall be maintained for (2 ± 1) s.

The forces may be replaced by masses. The relationship 10 N = 1 kg shall be used.

4.3 Tolerances

Unless otherwise stated, the following tolerances are applicable to the test equipment:

— Forces: ± 5 % of the nominal force;

— Velocities: ± 5 % of the nominal velocity;

— Masses: ± 1 % of the nominal mass;

— Dimensions: ± 1 mm of the nominal dimension;

— Angles: ± 2^{o} of the nominal angle.

The accuracy for the positioning of loading pads and impact plates shall be 5 mm.

NOTE For the purposes of uncertainty measurement, test results are not considered to be adversely affected when the above tolerances are met.

5 Test equipment and apparatus

The equipment shall not inhibit deformation nor cause unnatural deformation of the unit/component, i.e. it shall be able to move so that it can follow the deformation of the unit/component during testing.

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

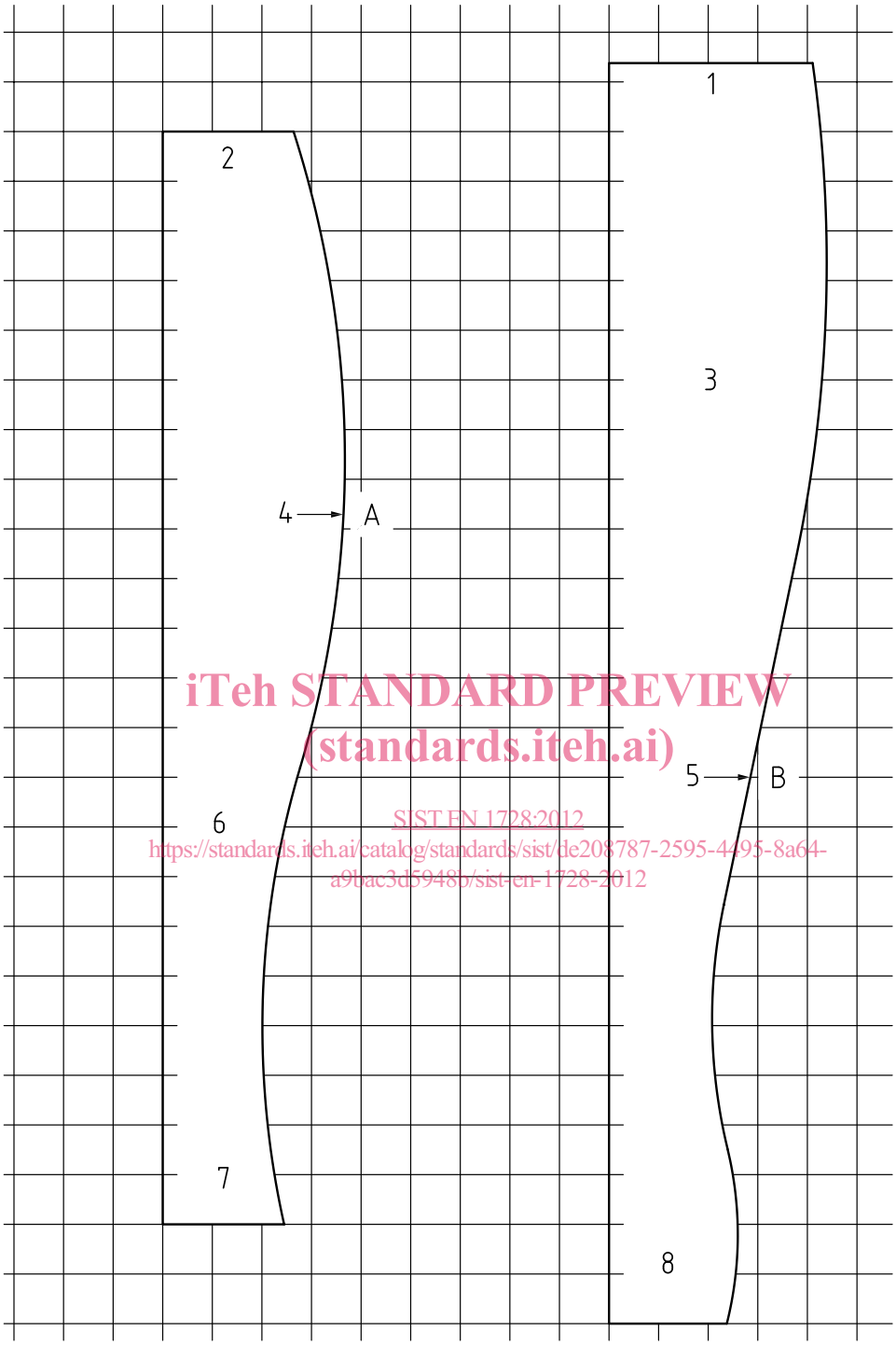
If a loading pad tends to slide, use a slip resistant material between the loading pad and the foam for loading pads (5.8).

The tests may be applied to any suitable device because results are dependent only upon correctly applied forces and not upon the apparatus. Exceptions include cases of impact tests where the apparatus described in 5.9 and 5.10 shall be used and the arm rest durability test where the apparatus described in 5.11 shall be used.

5.1 Loading point template, consisting of two shaped members (see Figure 1) 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 loading point template, with an additional mass applied at the seat loading point, shall be 20 kg +1 kg, - 0 kg.

The apparatus is marked as shown in Figure 2.



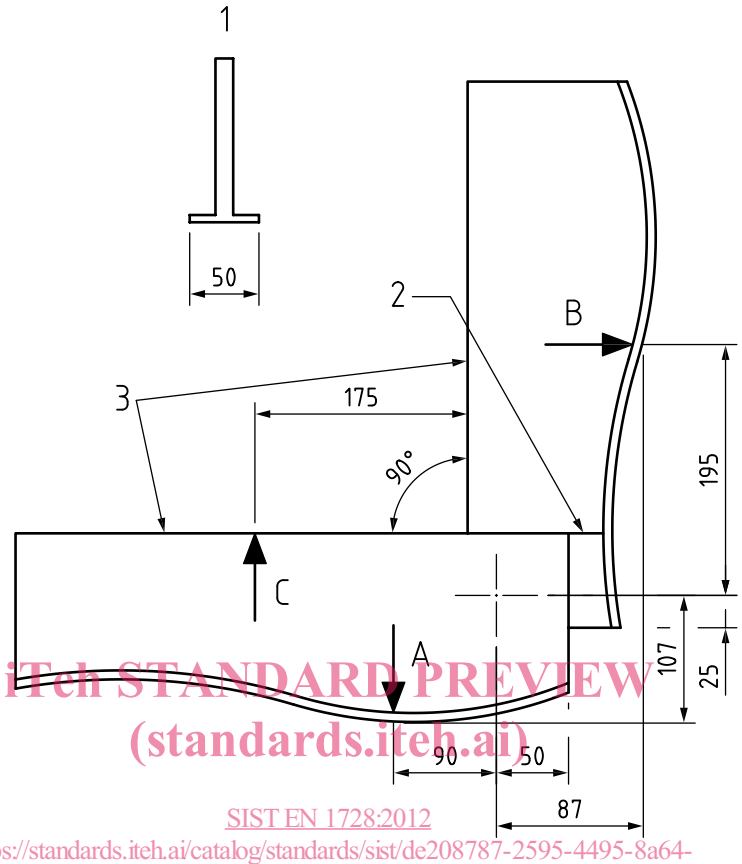
Scale: 1 square = 20 mm

Key

1	Top	4	Seat load	7	Front
2	Rear	5	Back load	8	Bottom
3	Back portion	6	Seat portion		

Figure 1 — Loading surface curves for seat and back loading point template

Dimensions in millimetres



Key

1 Typical section
2 Mark to fix 90°
3 Straight edge for the determination of seat or back inclination
A Seat load (chairs)
B Back load (chairs)
C Seat load (stools)

Figure 2 — 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.

5.2 Floor, which is horizontal, flat and rigid with a smooth surface.

For the back and arm rest impact tests (6.25 and 6.26), the drop (6.27) and the backwards fall test (6.28), the floor shall be faced with a 2 mm thick layer of rubber with a tests hardness of (85 ± 10) IRHD according to ISO 7619-2:2010.

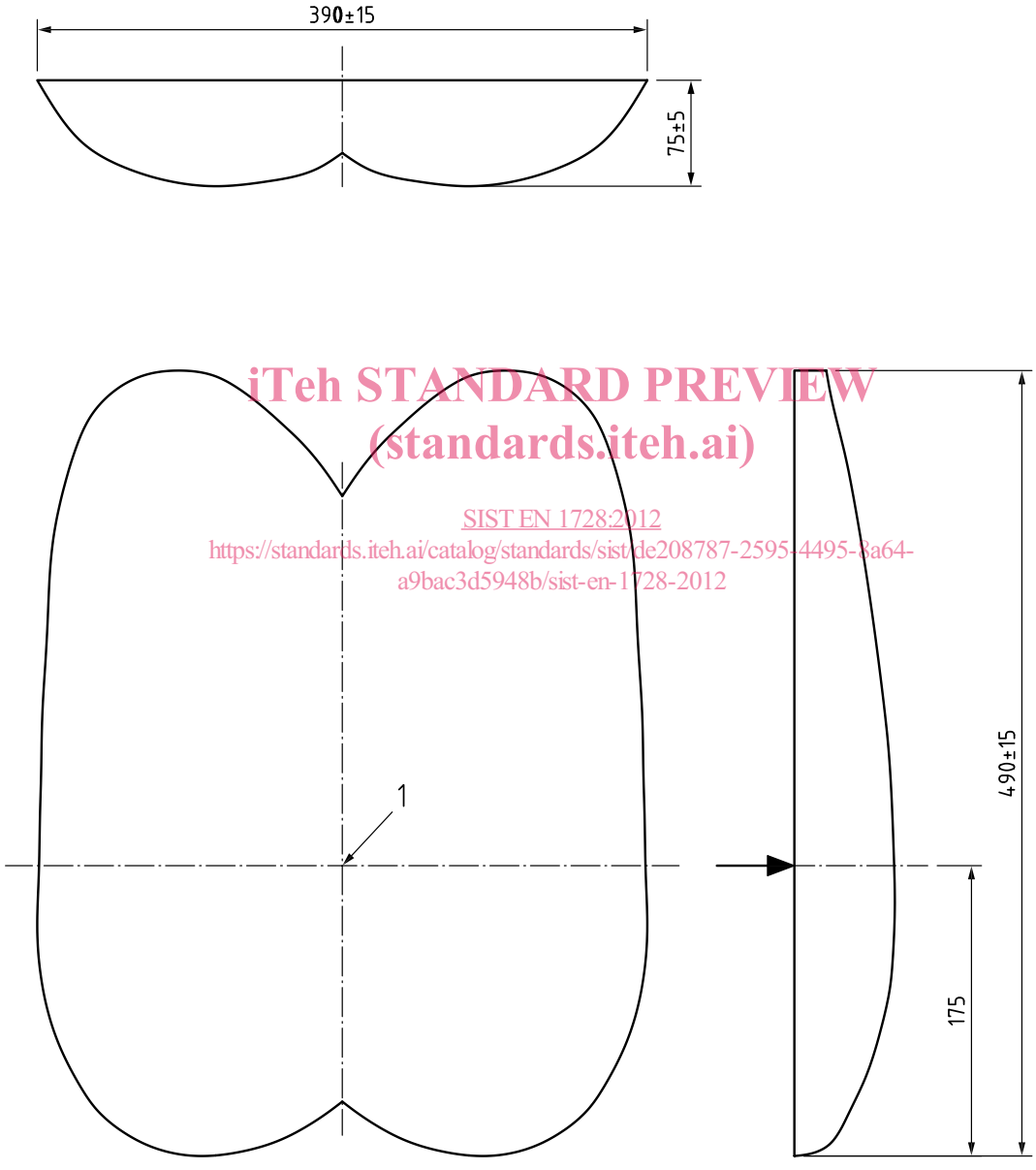
5.3 Stops.

Stops are used to prevent the item 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.

5.4 Seat loading pad, which is a naturalistically shaped rigid indenter with a hard, smooth surface having overall dimensions within the limits shown in Figure 3.

For details of design, see Annex A.

Dimensions in millimetres



Key

1 Seat loading point

Figure 3 — Seat loading pad – Overall dimensions

5.5 Smaller seat loading pad, which is a rigid circular object 200 mm in diameter, the loading surface of which has a convex spherical curvature of 300 mm radius with a 12 mm front edge radius (see Figure 4).

Dimensions in millimetres

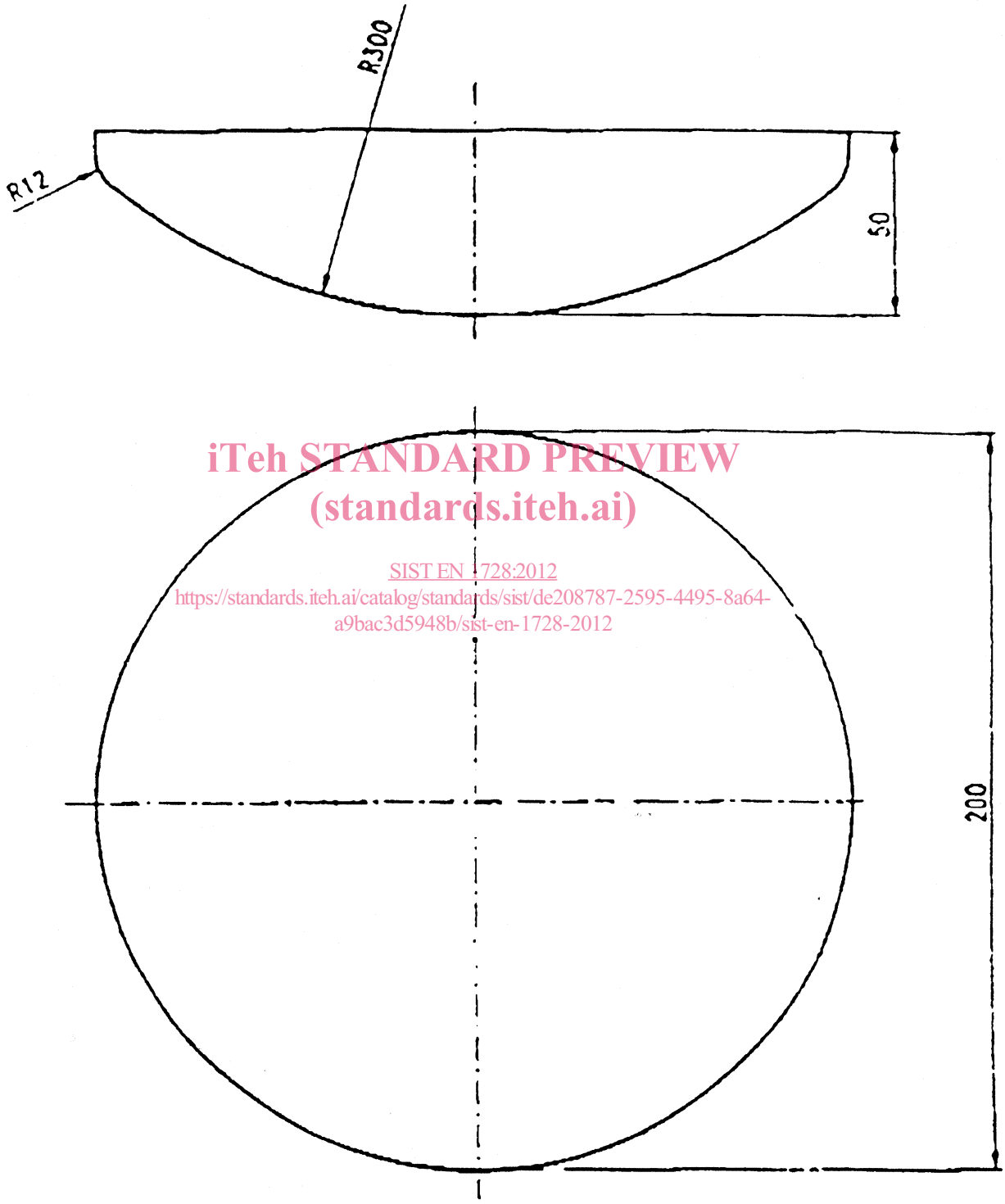


Figure 4 — Smaller seat loading pad

5.6 Back loading pad, which is a rigid rectangular object 200 mm high and 250 mm wide, the loading surface 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 5).

Dimensions in millimetres

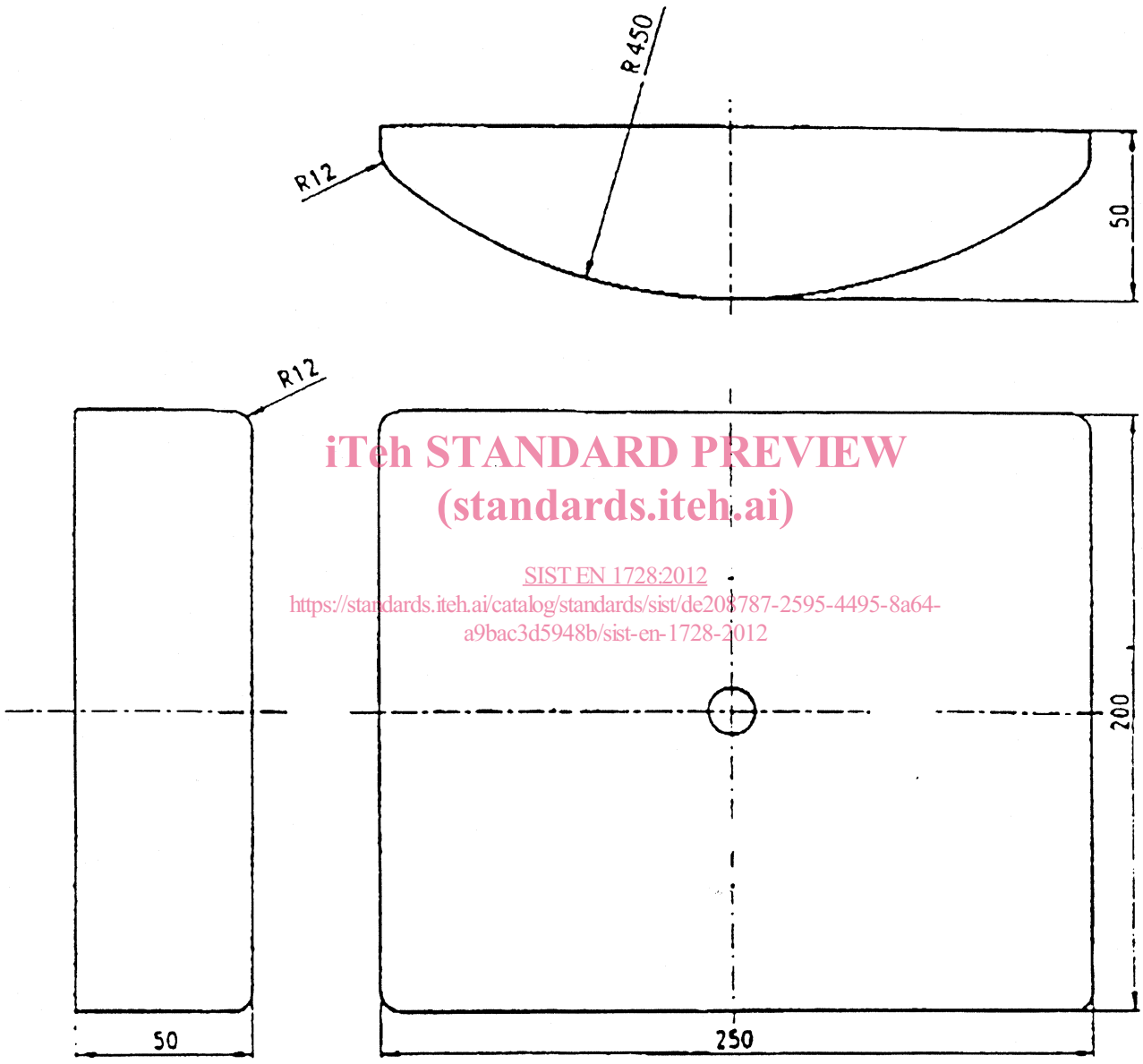


Figure 5 — Back loading pad

5.7 Local loading pad, which is a rigid cylindrical object 100 mm in diameter, with a flat face and a 12 mm edge radius.

5.8 Foam for use with loading pads.

A layer of flexible foam with a bulk density of (120 ± 25) kg/m^3, 25 mm or 10 mm thick. The foam shall be attached to the loading pads or alternatively positioned between the loading pad and the test structure.

5.9 Seat impactor.

The seat impactor is shown in Figure 6. The impactor is comprised of the following elements.

5.9.1 Circular body.

The circular body is 200 mm in diameter, separated from the striking surface by helical compression springs and free to move relative to it on a line perpendicular to the plane of the central area of the striking surface. The body and associated parts minus the springs shall have a mass of (17 ± 0,1) kg and the whole apparatus, including mass, springs and striking surface, shall have a mass of (25 ± 0,1) kg.

5.9.2 Springs.

The springs shall be such that the nominal spring rate of the combined spring system is (7 ± 2) N/mm and the total friction resistance of the moving parts is less than 1 N.

The spring system shall be compressed to an initial force of (1 040 ± 5) N (measured statically) and the amount of spring compression movement available from the initial compression point to the point where the springs become fully closed shall be not less than 60 mm.

5.9.3 Striking surface.

The striking surface shall be a 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.