



SLOVENSKI STANDARD
SIST EN 1022:2019

01-april-2019

Nadomešča:
SIST EN 1022:2006

Pohištvo - Sedežno pohištvo - Ugotavljanje stabilnosti

Furniture - Seating - Determination of stability

Möbel - Sitzmöbel - Bestimmung der Standsicherheit

Mobilier domestique - Sièges - Détermination de la stabilité

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: ~~SIST EN 1022:2018~~ EN 1022:2018

<https://standards.iteh.ai/catalog/standards/sist/68f0c6f-d6b2-4db9-9c19-779b331656e8/sist-en-1022-2019>

ICS:

97.140 Pohištvo Furniture

SIST EN 1022:2019 **en,fr,de**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1022:2019

<https://standards.iteh.ai/catalog/standards/sist/68f0c6f-d6b2-4db9-9c19-779b331656c8/sist-en-1022-2019>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1022

November 2018

ICS 97.140

Supersedes EN 1022:2005

English Version

Furniture - Seating - Determination of stability

Mobilier - Sièges - Détermination de la stabilité

Möbel - Sitzmöbel - Bestimmung der Standsicherheit

This European Standard was approved by CEN on 1 July 2018.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

[SIST EN 1022:2019](https://standards.iteh.ai/catalog/standards/sist/68f60c6f-d6b2-4db9-9c19-779b331656c8/sist-en-1022-2019)

<https://standards.iteh.ai/catalog/standards/sist/68f60c6f-d6b2-4db9-9c19-779b331656c8/sist-en-1022-2019>



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 General test conditions	7
4.1 General.....	7
4.2 Application of forces	8
4.3 Tolerances	8
5 Test equipment.....	8
5.1 General.....	8
5.2 Loading point template.....	8
5.3 Floor.....	10
5.4 Stops.....	10
5.5 Stability loading pad	10
5.6 Stability loading device.....	11
5.7 Loading discs.....	13
5.8 Support apparatus.....	13
5.9 Support for tests for reclining back rests.....	13
5.10 Local loading pad	13
5.11 Seat loading pad.....	13
6 Determination of seat and back loading points.....	14
6.1 Swivelling seats.....	14
6.1.1 Seat loading point "A"	14
6.1.2 Back loading point "B"	15
6.2 All other seating.....	15
6.2.1 General.....	15
6.2.2 Seating with a back rest	15
6.2.3 Seating without a back rest	15
6.3 Loungers	17
6.4 Determination of height of seat loading point.....	17
7 Test methods for assessing stability of all seating except loungers.....	17
7.1 General.....	17
7.2 Requirements	18
7.3 Test procedures, all seating	18
7.3.1 Forwards overturning	18
7.3.2 Forwards overturning for seating with foot rest.....	21
7.3.3 Corner stability test.....	21
7.3.4 Sideways overturning, all seating without arm rests	23
7.3.5 Sideways overturning, all other seating	24
7.3.6 Rearwards overturning all seating with back rests	26
7.4 Additional test procedures for seating with reclining back rests	27
7.4.1 General.....	27
7.4.2 Tilting seating.....	27
7.4.3 Reclining seating with leg rest	28
7.4.4 Reclining seating without leg rest.....	30
7.4.5 Rearwards stability test for rocking chairs	31

8	Loungers	32
8.1	General	32
8.2	Requirements	33
8.3	Test procedures	33
8.3.1	Forwards overturning	33
8.3.2	Sideways overturning	33
9	Test report	34
Annex A (normative) Seat loading pad data		35
Annex B (normative) Test parameters		38
B.1	All seating other than loungers	38
B.2	Loungers	39

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1022:2019](https://standards.iteh.ai/catalog/standards/sist/68f60c6f-d6b2-4db9-9c19-779b331656c8/sist-en-1022-2019)

<https://standards.iteh.ai/catalog/standards/sist/68f60c6f-d6b2-4db9-9c19-779b331656c8/sist-en-1022-2019>

European foreword

This document (EN 1022:2018) 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 May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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

This document supersedes EN 1022:2005.

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

- The title and scope of the document has been changed to include seating for all uses.
- All test methods for assessing the stability of seating used in European Standards for furniture have been collated in one document. The document now contains methods that were previously listed in EN 1022, EN 581-2, *Outdoor furniture* and EN 1335-3, *Office Work Chairs*.
- Test methods for assessing the stability of office work chairs and all other seating have been harmonised.
- A test method for assessing corner stability has been introduced for all types of chair.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This document specifies test methods and requirements for the determination of the stability of all types of seating for adults weighing up to 110 kg, without regard to use, materials, design/construction or manufacturing process.

The test methods described can be used for seating for children and heavier adults by modifying test loads and loading points.

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

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

arm rest

part of the seating able to support the arms of the user when seated, 100 mm or higher above the height of the seat loading point

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.2

back rest

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

SIST EN 1022:2019
<https://standards.iteh.ai/catalog/standards/sist/68f60c6f-d6b2-4db9-9c19-f71b331c5621/en-1022-2018>

3.3

foot rest

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

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

3.4

leg rest

extension of the seat area intended to support the legs of the user

Note 1 to entry: A leg rest can or cannot be permanently attached to the structure of the item of seating, and may not be suitable for use as an item of seating itself.

3.5

load bearing structure

load bearing parts of the item of seating such as the frame, seat, back and arm supports and suspension

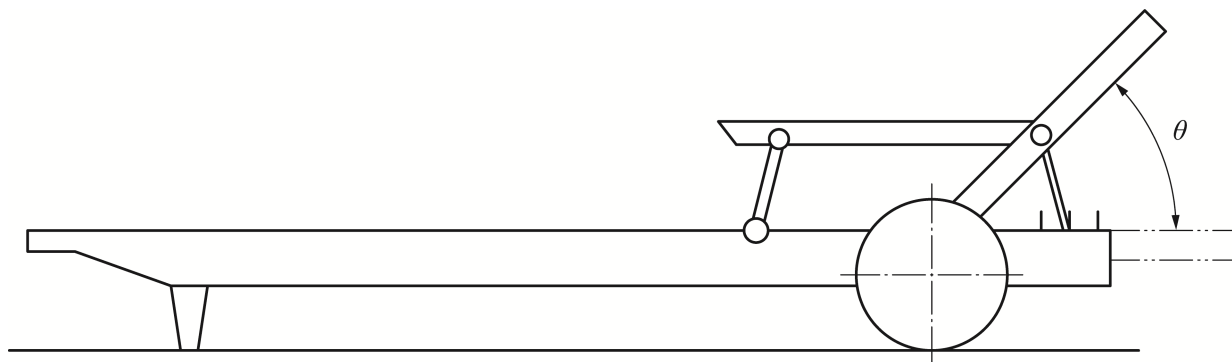
3.6

lounger

item of seating intended for reclined posture with at least one back rest position such that back rest angle is 45 degrees or less to the horizontal, and a leg rest which is an integral part of the product and intended to support the full body weight of a user

EN 1022:2018 (E)

Note 1 to entry: See Figure 1.

**Key**

θ back rest angle

Figure 1 — Example of Lounger

3.7 median plane
vertical plane running from front to rear through the centre of the seat, dividing the item of seating into two parts

Note 1 to entry: In most instances the two parts are symmetrical.

Note 2 to entry: See Figure 2.

3.8 overturning
when an item of seating pivots to a position beyond which the item continues to fall-

3.9 raised side edge
side edge of the item of seating, higher than 50 mm above the height of the seat loading point

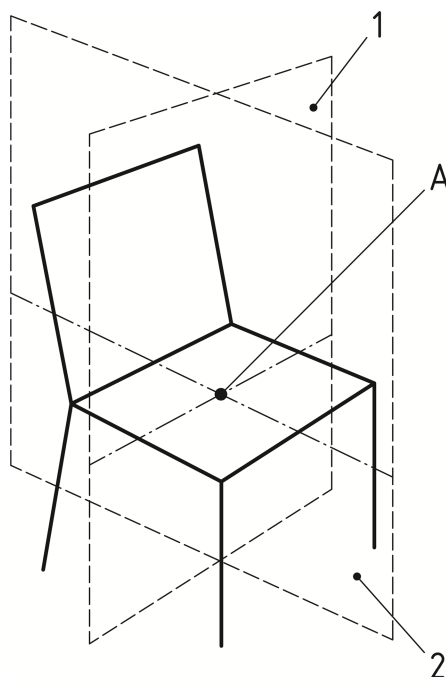
3.10 stability
ability to withstand forces that tend to cause the loaded seating to overturn

3.11 supporting point
foot of a leg, castor or glide

3.12 swivelling seat
item of seating, whose upper part, which includes the seat and back, is supported on a single column and can rotate in the horizontal plane

3.13 transverse plane
vertical plane perpendicular to the median plane passing through the seat loading point

Note 1 to entry: See Figure 2.

**Key**

- 1 transverse plane
- 2 median plane
- A seat loading point

iTeh STANDARD PREVIEW

(standards.iteh.ai)

Figure 2 — Transverse and median plane

3.14**work chair**

swivelling chair, with or without arm rests, for use by one adult in the office, 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

4 General test conditions**4.1 General**

The furniture shall be tested as delivered. Knock-down furniture shall be assembled according to the instructions supplied with it. Knock-down fittings shall be tightened before testing.

If the furniture can be assembled or combined in different ways, the most adverse configuration shall be used for each 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 but 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 shall be applied sufficiently slowly to ensure that negligible dynamic load is applied.

Unless otherwise stated, overturning forces shall be maintained for (5 ± 2) s.

For rearwards stability tests defined in 7.4.2, 7.4.3, and 7.4.4, the loading discs shall be maintained in position for (120 ± 60) s.

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

4.3 Tolerances

Unless otherwise stated the following tolerances are applicable:

- forces: $\pm 5 \%$ of the nominal force;
- masses: $\pm 1 \%$ of the nominal mass;
- dimensions: all dimensions less than 300 mm shall have a tolerance of $\pm 1 \text{ mm}$ of the nominal dimension, all other dimensions shall have a tolerance of $\pm 0,5 \%$ of the nominal dimension;
- angles: $\pm 2^\circ$ of the nominal angle.

The accuracy for the positioning of loading pads shall be $\pm 5 \text{ mm}$.

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

ITeH STANDARD PREVIEW
(standards.iteh.ai)

5 Test equipment

5.1 General

SIST EN 1022:2019

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 device and the item of seating.

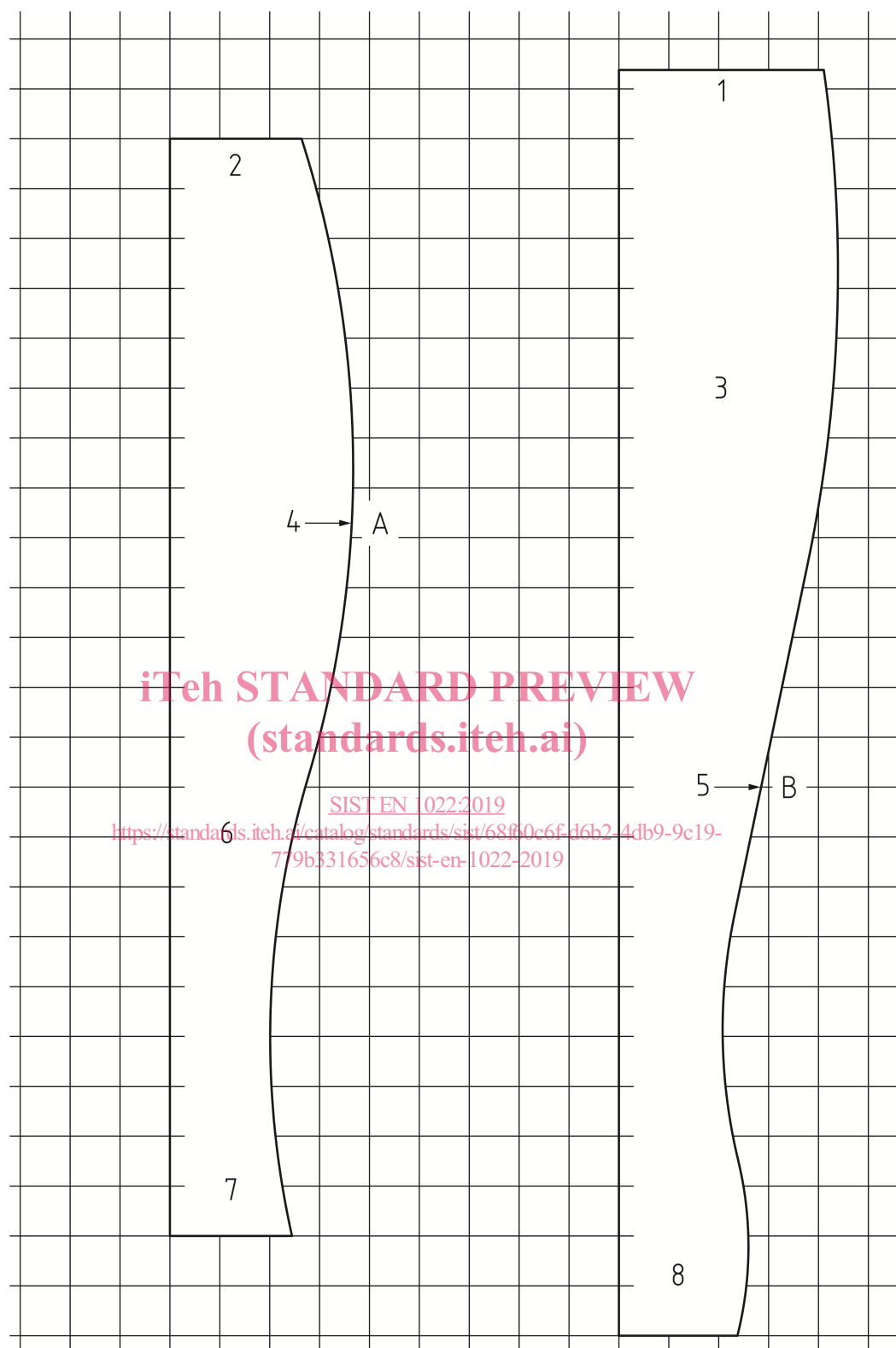
The tests may be applied by any suitable device because results are dependent only upon correctly applied forces and not upon the apparatus.

5.2 Loading point template

Consisting of two shaped members (see Figure 3) 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_0^{+1} kg .

The apparatus is marked as shown in Figure 4.

Dimensions in millimetres

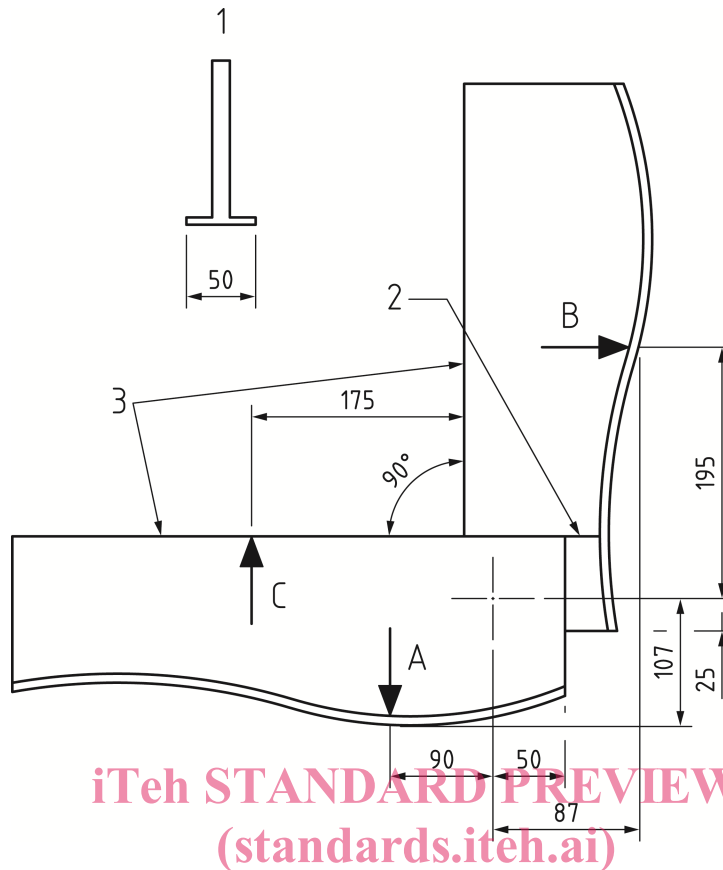


Scale: 1 square = 20 mm

Key

- | | | | |
|---|--------------|---|--|
| 1 | top | 6 | seat portion |
| 2 | rear | 7 | front |
| 3 | back portion | 8 | bottom |
| 4 | seat load | A | seat loading point (all seating except stools) |
| 5 | back load | B | back loading point (all seating except stools) |

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

**Key**

- 1 typical section
- 2 mark to fix 90°
- 3 straight edge for the determination of seat or back inclination
- A seat loading point (all seating except stools)
- B back loading point (all seating except stools)
- C seat loading point (stools)

Figure 4 — 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.

5.3 Floor

Horizontal, flat and rigid with a smooth surface.

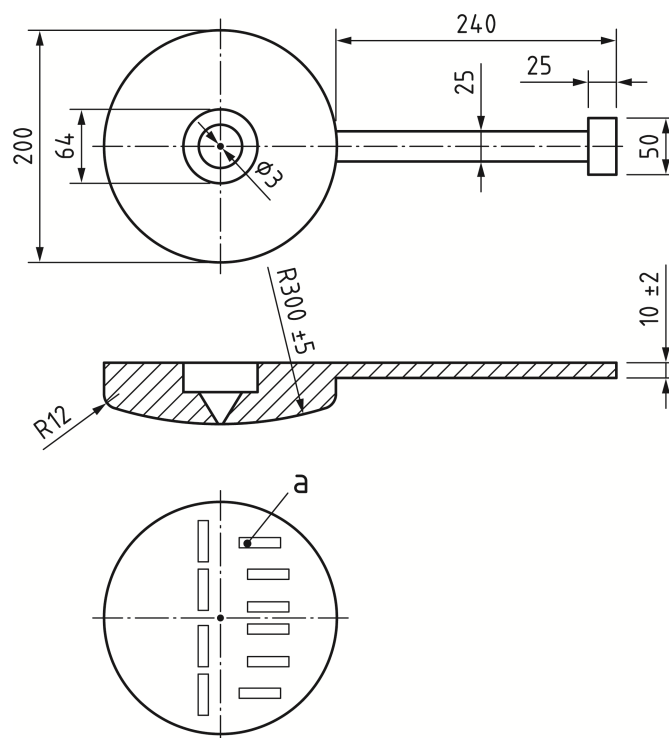
5.4 Stops

Unless otherwise stated, stops shall be of the minimum height required to prevent sliding and shall not inhibit overturning.

5.5 Stability loading pad

A loading pad as shown in Figure 5. The circular pad may be made of any suitable material (e.g. plastic or wood). The extension piece shall be made of aluminium. Where it is not possible to use the pad with extension piece, a stability loading pad without the extension piece may be used.

Dimensions in millimetres

**Key**

- a grip material on a 300 mm R surface, recessed into a groove so that only the gripper teeth protrude. The carpet gripper placement shown is one example, other configurations are acceptable

Figure 5 — Stability loading pad

<https://standards.iteh.ai/catalog/standards/sist/68f60c6f-d6b2-4db9-9c19-779b331656c8/sist-en-1022-2019>

5.6 Stability loading device

A loading device in principle functioning as shown in Figure 6.