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Pisarniško pohištvo - Pisarniški delovni stoli - 3. del: Preskusne metode

Office furniture - Office work chair - Part 3: Test methods

Büromöbel - Büro-Arbeitsstuhl - Teil 3: Prüfverfahren

Mobilier de bureau - Sieges de travail de bureau - Partie 3: Méthodes d'essai

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Office furniture - Office work chair - Part 3: Test methods

Mobilier de bureau - Sièges de travail de bureau - Partie 3: Méthodes d'essai

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This European Standard was approved by CEN on 28 February 2009.

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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 Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 1335-3:2009) has been prepared by Technical Committee CEN/TC 207 “Furnitures”, 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

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 1335-3:2000.

This series consist of following parts:

— EN 1335-1, *Office furniture — Office work chair — Part 1: Dimensions — Determination of dimensions*;

— EN 1335-2, *Office furniture — Office work chair — Part 2: Safety requirements*;

— EN 1335-3, *Office furniture — Office work chair — Part 3: Test methods*.

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

a) ISO 21015:2007 has been adopted as far as possible;

b) loads and cycles for the safety tests have been moved to EN 1335-2;

c) Annex C includes loads and cycles for functional tests;

d) seat and back durability test procedures have been significantly changed;

e) determination of the maximum offset of the backrest has been deleted.

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

1 Scope

This European Standard specifies mechanical test methods for determining the stability, strength and durability of office work chairs.

This European Standard does not specify type approval tests for chair components.

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

The tests consist of the application, to various parts of the item, of forces simulating normal functional use, as well as misuse that might reasonably be expected to occur.

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

The test results are only valid for the article tested. When the test results are intended to be applied to other similar articles, it is important that the test specimen be representative of the production model.

Tests carried out according to this standard are intended to demonstrate the ability of the item to give satisfactory service in its intended environment. The safety requirements are specified in EN 1335-2 and additional loads, masses and cycles for functional tests can be found in Annex C (informative).

The tests have been developed for units/components that have not been in use. However, when properly justified, they may be used for fault investigation.

Assessment of ageing and degradation is not included. The tests are not intended to assess the durability of upholstery, i.e. filling materials and covers.

Data are given for the design of seat-loading pads in Annex A (normative) and for the design of stability-loading pad in Annex B (normative).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1335-2:2009, *Office furniture — Office work chair — Part 2: Safety requirements*

3 Terms and definitions

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

3.1
office work chair
piece of seating furniture for one person, with a back rest, with or without arm rests, whose upper part, which includes the seat, can rotate in the horizontal plane and can be adjusted in height

NOTE Other adjustments may be included.

3.2
column
office work chair component that connects the base and the seat structure

NOTE A column normally incorporates a seat height adjustment and swivel mechanism.

3.3
locking device
device which inhibits the movement of the seat action and/or the back rest

3.4
arm rest length
distance between vertical lines through its front and rear edges

NOTE In the case of an arm rest, which is not horizontal or which is curved, the length is measured in a horizontal plane 20 mm below the highest point of the arm rest.

3.5
supporting point
castor or glide

4 General test conditions

4.1 Preliminary preparation

The unit shall be assembled and/or configured according to the instructions supplied with it. The most adverse configuration shall be used for each test, see Table 1. For testing a range of related chair models, only worst case(s) need to be tested. If mounting or assembly instructions are not supplied, the mounting or assembly method shall be recorded in the test report. Fittings shall not be re-tightened unless specifically required by the manufacturer. If the configuration must be changed to produce the worst case conditions, any re-tightening of the fittings shall be recorded in the test report.

Unless otherwise stated all tests shall be carried out on the same sample.

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

In the case of designs not addressed in the test procedures, the test shall be carried out as far as possible as described, and deviations from the test procedure recorded in the test report.

Before beginning the testing, visually inspect the unit thoroughly. Record any defects so that they are not assumed to have been caused by the tests. Carry out measurements if specified.

4.2 Test equipment

Unless otherwise specified, the tests may be applied by any suitable device because results are dependent only upon correctly applied forces and not on the 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 surface being tested.

4.3 Application of forces

The forces in the static load tests shall be applied sufficiently slowly to ensure that negligible dynamic force is applied. Each force shall be maintained for not less than 10 s and not more than 15 s.

The forces in durability tests shall be applied at a rate to ensure that excessive heating does not occur. Each force shall be maintained for (2 ± 1) s.

The forces may be applied using masses.

4.4 Tolerances

Unless otherwise stated, the following tolerances are applicable:

Forces: ± 5 % of the nominal force

Masses: ± 1 % of the nominal mass

Dimensions: ± 5 mm of the nominal dimension on soft surfaces
± 1 mm of the nominal dimension on all other surfaces

Angles: ± 2° of the nominal angle

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

The tests specify the application of forces. Masses may, however, be used. The relation 10 N for 1 kg may be used for this purpose.

4.5 Sequence of testing

All applicable tests shall be carried out on the same sample.

The sequence of the safety tests shall be as specified in EN 1335-2:2009, 4.2.

If functional tests shall be carried out, this shall be done in the sequence of Table C.1 after completing all the safety tests specified in EN 1335-2.

4.6 Inspection and assessment of results

After completion of each test, inspect the unit again. Record any changes including:

a) fracture of any component or joint;

b) loosening of any joint intended to be rigid, which can be demonstrated by hand pressure;

c) deformation or wear of any part or component such that its function is impaired;

d) loosening of any means of fixing components to the unit;

e) changes that may affect stability.

Table 1 — Positioning of chair components

Clause	Test	Seat height	Seat	Back rest in height	Back rest in depth	Tilt stiffness adjustment	Castors and base	Arm rest	Foot rest
7.1.1	Front edge overturning	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	
7.1.2	Forward overturning	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	---
7.1.3	forward overturning for chairs with foot rest	highest position	foremost position	lowest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	most likely to cause overturning
7.1.4	Sideways overturning for chairs without arm rests	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	---	---
7.1.5	Sideways overturning for chairs with arm rests	highest position	foremost position	highest position	foremost position	maximum tension	most likely to cause overturning	most likely to cause overturning	---
7.1.6	Rearwards overturning of chairs without back rest inclination	highest position	rearmost position	highest position	rearmost position	minimum tension	most likely to cause overturning	most likely to cause overturning	---
7.1.7	Rearwards overturning of chairs with back rest inclination	highest position	rearmost position	highest position	rearmost position	minimum tension	most likely to cause overturning	most likely to cause overturning	---
7.2.1	Seat front edge static load test	highest position	foremost position	---	---	---	---	---	---
7.2.2	Combined seat and back static load	highest position	most adverse position	highest position	rearmost position	mid range	least likely to cause overturning	---	---
7.2.3	Arm rest downward static load test – central	lowest position	horizontal	---	---	---	---	most likely to cause failure	---
7.2.4	Arm rest downward static load test – front	lowest position	horizontal	---	---	---	---	highest, foremost position	---
7.2.5	Arm rest sideways static load test	lowest position	horizontal	---	---	---	---	highest, widest position	---
7.2.6	Foot rest static load test	---	---	---	---	---	least likely to cause overturning	---	highest position
7.3.1	Seat and back durability	highest position	horizontal	highest position	most likely to cause failure	mid range	90° to the base arm	---	---
7.3.2	Arm rest durability	lowest position	horizontal	---	---	maximum tension	---	highest, widest position	---
7.3.3	Swivel test	highest position	horizontal, foremost position	highest position	rearmost position	---	---	---	---
7.3.4	Foot rest durability	---	---	---	---	---	least likely to cause overturning	---	lowest position
7.3.5	Castor durability	lowest position	horizontal	---	---	---	---	---	---

5 Test apparatus

5.1 Test surface

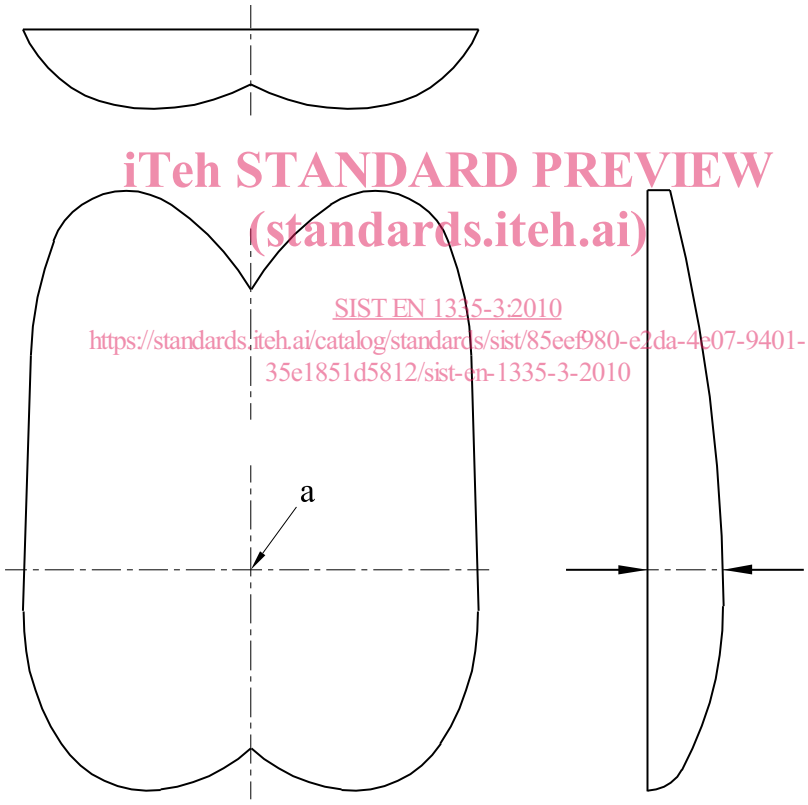
A rigid, horizontal and flat surface.

5.2 Stops

Devices to prevent the chair from sliding or rolling but not overturning. They shall be 3 mm high for stability tests and 12 mm high for all other tests, except in cases where the design of the chair or the test method necessitates the use of higher stops, in which case the lowest that will prevent the chair from sliding or rolling, shall be used.

5.3 Seat loading pad

The seat loading pad is a naturalistically shaped rigid indenter with a hard, smooth surface, see Figure 1. In principle, this loading pad is for use in loading points "A" (6.1) and "C" (6.3), see Figure 6. For details of the design see Annex A.



Key
a loading point

Figure 1 — Seat loading pad - principle

5.4 Smaller seat loading pad

The smaller seat loading pad is 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 blend radius between the face and the side, see Figure 2. In principle, this loading pad shall be used in loading points "D" (6.4), "G" (6.7), "F" (6.6) and "J" (6.9), see Figure 6.

Dimensions in millimetres

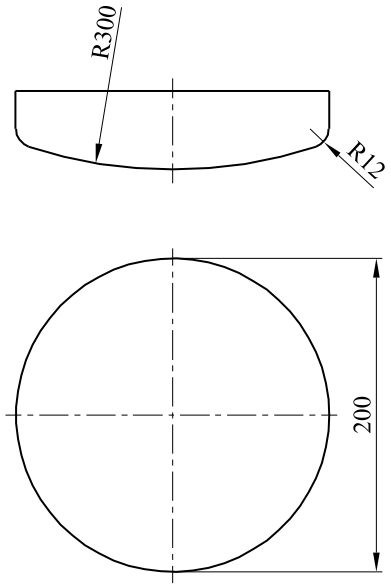


Figure 2 — Smaller seat loading pad

5.5 Local loading pad

The local loading pad is a rigid, circular object 100 mm in diameter, with a flat face and a 12 mm blend radius between the face and the side.

5.6 Back loading pad

The back loading pad is a 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 blend radius between the face and the sides, see Figure 3.

Dimensions in millimetres

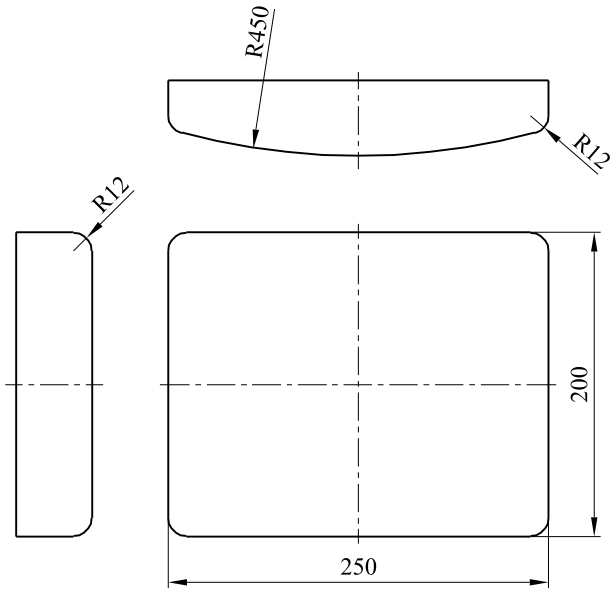


Figure 3 — Back loading pad