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Pisarniško pohištvo - Pisarniški delovni stoli - 3. del: Varnostne preskusne metode

Office furniture - Office work chair - Part 3: Safety test methods

Büromöbel - Büro-Arbeitsstuhl - Teil 3: Sicherheitsprüfungen

Mobilier de bureau - Siege de travail de bureau - Partie 3: Essais de sécurité

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This European Standard was approved by CEN on 12 December 1999.

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

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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of an identical text or by endorsement, at the latest by August 2000, and conflicting national standards shall be withdrawn at the latest by August 2000.

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.

The text was prepared by CEN/TC 207/SC 3/WG 1, Office Furniture - Chairs. The Secretariat is held by DIN.

This series consists of the 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: Safety test methods.

This standard does not replace any other European Standard.

1 Scope

This part of EN 1335:2000 specifies the test methods to be applied when testing the safety of office work chairs. The corresponding safety requirements are found in EN 1335-2.

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

The tests in clauses 7, 8 and 9 are based upon use for eight hours a day by persons weighing up to 110 kg. For more severe conditions of use increased requirements will be necessary.

2 Normative references

This 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1022	Domestic furniture - Seating - Determination of stability.
EN 1335-1:2000	Office furniture - Office work chair - Part 1: Dimensions, determination of dimensions.
EN 1335-2	Office furniture - Office work chair - Part 2: Safety requirements.

3 Test equipment

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

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

The smaller loading pads specified in 3.5 and 3.6 may be used on any loading point providing this does not influence the result of the test.

3.1 Floor surface

The floor surface shall be horizontal, flat, rigid and smooth.

3.2 Test surface for testing rolling resistance

3.2.1 For testing type W castors

A table with a horizontal smooth steel surface.

3.2.2 For testing type H castors

A table covered with textile having characteristics specified in Table 1.

Table 1 - Textile floor covering

Requirements for	Characteristic
Production method	Tufted
Upper surface	loop pile
Nap count per m²	100 000 to 130 000
Backing material	synthetic latex
Raw material used for loop pile	100 % polyamide
Yarn type	filament yarn
Pile thickness of fully trimmed sample	3,5 mm
Pile weight of fully trimmed sample	450 g/m^2

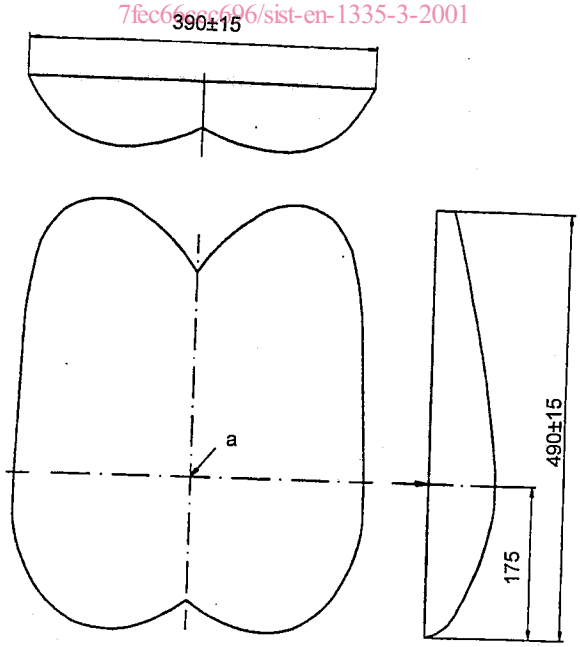
Before test values are measured the chair shall be pushed/pulled five times over the area of the covering which will be used for the test.

3.3 Stops

Stops to prevent the chair from sliding or rolling but not tilting, no higher than 12 mm except in cases where the design of the chair necessitates the use of higher stops, in which case the lowest that will prevent the chair from sliding or rolling shall be used.

3.4 Seat loading pad

The seat loading pad is a naturalistically shaped rigid indenter with a hard, smooth surface having overall dimensions within the limits shown in Figure 1. In principle, this loading pad is for use in loading points "A" and "C" (see Figure 13).



a Force application point

Figure 1 - Seat loading pad - Overall dimensions

Two examples are shown in annex A.

3.5 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 front edge radius (see Figure 2). In principle, this loading pad is to be used in loading points "D", "G", "F" and "J" (see Figure 13).

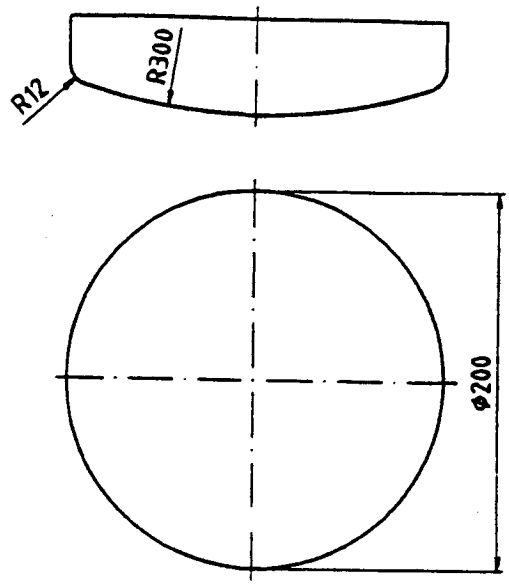


Figure 2 - Smaller seat loading pad

3.6 Local loading pad

The local loading pad is a rigid, circular object 100 mm in diameter, with a flat face and a 12 mm front edge radius.

3.7 Loading discs

Loading discs each with a mass of 10 kg, a diameter of 350 mm and a thickness of 48 mm.

3.8 Test equipment for front edge overbalancing

A 27 kg mass fixed to a 50 mm wide strap.

3.9 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 radius on all front edges (see Figure 3).

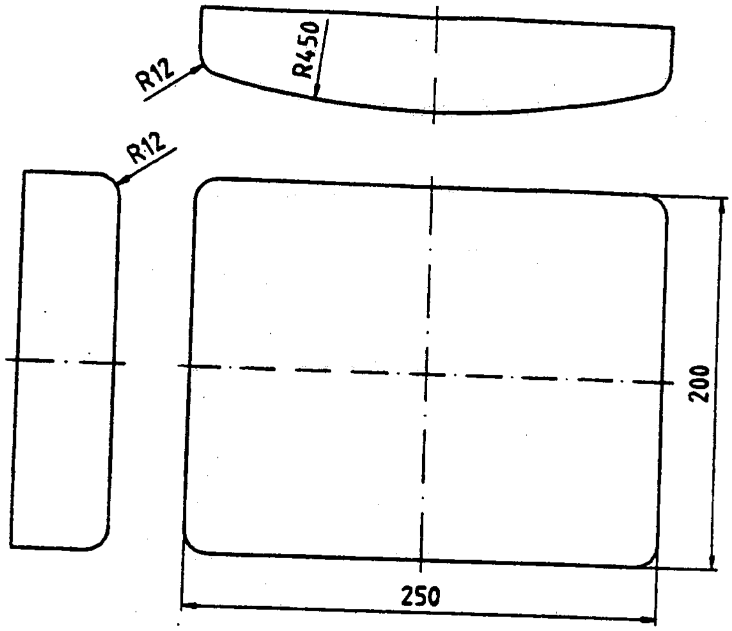


Figure 3 - Back loading pad

3.10 Arm fatigue test apparatus

An apparatus capable of applying a cyclic force simultaneously to both arm rests. The forces shall be applied through an arm rest loading device in principle functioning as shown in Figure 4.

The apparatus, made of two devices, shall be capable of applying the forces at varying angles to the vertical by means of low friction pivots. It can be adjusted both vertically and horizontally and then locked in position (see Figure 14). The apparatus shall be capable of following the deformation of the arm rests during testing.

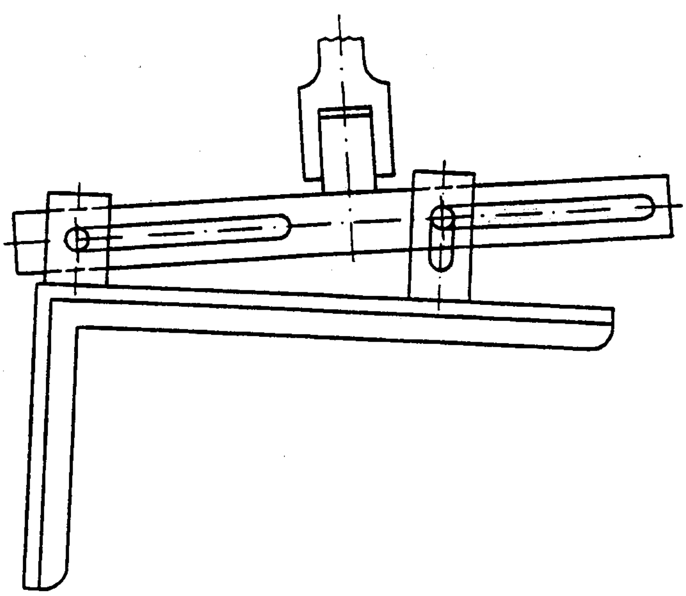


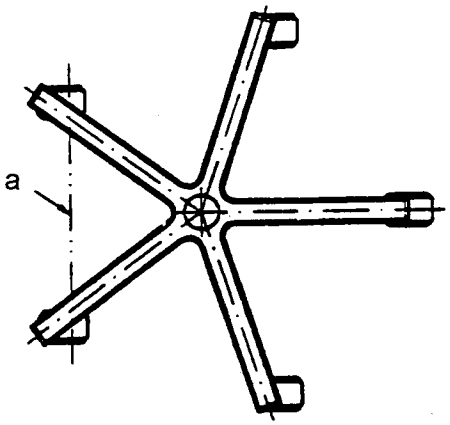
Figure 4 - Arm fatigue test - Arm loading device

4 General test conditions

4.1 Positioning

Unless otherwise stated, position the chair on the floor surface (see 3.1) with the supporting points restrained by stops (see 3.3).

The chair components, e.g. castors, shall for each test be positioned such as to ensure the most adverse configuration, i.e. the one giving the least favourable test result (see Table 2) and shall be recorded in the test report.



a Tipping axis

Figure 5 - Position of castors most likely to cause overbalancing

Table 2 - Positioning of chair components

Clause	Test	Seat height	Seat	Back rest in height	Back rest in depth	Position of castors	Arm rest
5.1	Front edge overbalancing	highest position	foremost position	highest position	foremost position	see Figure 5	most likely to cause failure
5.2	Forwards overbalancing	highest position	foremost position	highest position	foremost position	see Figure 5	most likely to cause failure
5.3.1	Sideways overbalancing for chairs without arm rests	highest position	foremost position	highest position	foremost position	see Figure 5	---
5.3.2	Sideways overbalancing for chairs with arm rests	highest position	foremost position	highest position	foremost position	see Figure 5	most likely to cause failure
5.4.1	Determination of the maximum offset of the back rest	highest position	rearmost position	most adverse position	rearmost position	see Figure 5	most likely to cause failure
5.4.2	Rearwards overbalancing of chairs without back rest inclination	highest position	rearmost position	highest position	rearmost position	see Figure 5	most likely to cause failure
5.4.3	Rearwards overbalancing of chairs with back rest inclination	highest position	rearmost position	highest position	rearmost position	see Figure 5	most likely to cause failure
6	Testing of rolling resistance	lowest position	---	---	---	---	---
7	Testing of seat and back rest	highest position	horizontal	highest position	most likely to cause failure	most likely to cause failure	---
8	Testing of back rests which are rotatable around a horizontal axis	---	---	---	---	---	---
9.1	Testing of durability of arm rests	lowest position	---	---	---	---	highest and outermost position
9.2	Vertical static load test of arm rests	lowest position	---	---	---	---	highest and outermost position

4.2 Loading points

Loading point "A", see 3.3 of EN 1335-1:2000.

Loading point "B" is the point of the back rest in the median plane (in the middle of the back rest width *l*), 300 mm vertically above point "A".

4.3 Test frequency

Unless otherwise stated, a rate of testing of 15 ± 5 cycles per minute is recommended. Higher or lower rates of testing are permissible providing:

a) there is no kinetic heating or dynamic forces; and
b) the variation in rate of testing is recorded in the test report.

4.4 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 mm;
- all angles an accuracy of ±2°;
- the positioning of loading pads an accuracy of ±5 mm.

Note: 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.

5 Stability tests

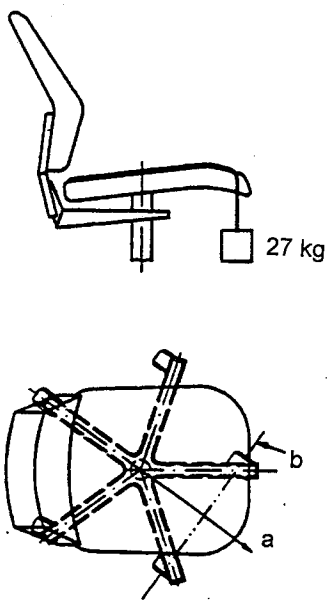
5.1 Front edge overbalancing

Do not position the chair with the stops (see 3.3) against the supporting points.

Position the chair components as specified in 4.1 and Table 2.

Fix the strap (see 3.8) to the chair as shown in Figure 6, i.e. the force is applied at the point on the front edge that is furthest from the axis of rotation, and allow the 27 kg mass to hang freely.

Record whether the chair overbalances.



a Direction of strap
b Tipping axis

Figure 6 - Front edge overbalancing