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Office furniture — Office work chair

Part 3: Test methods

ICS 13.180; 97.140

BSI
British Standards

National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.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

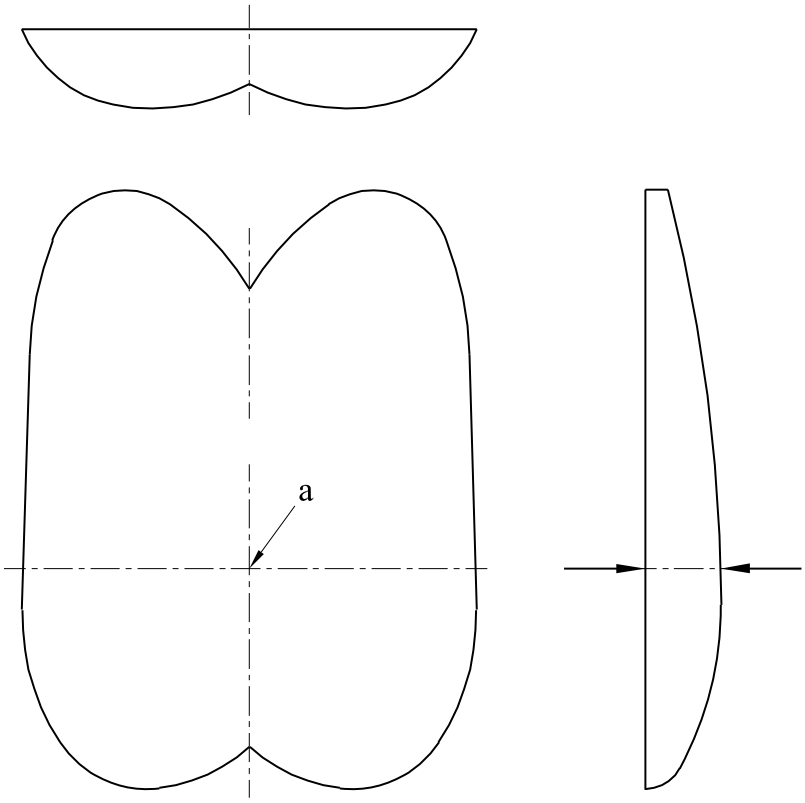
A rigid, horizontal and flat surface.

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

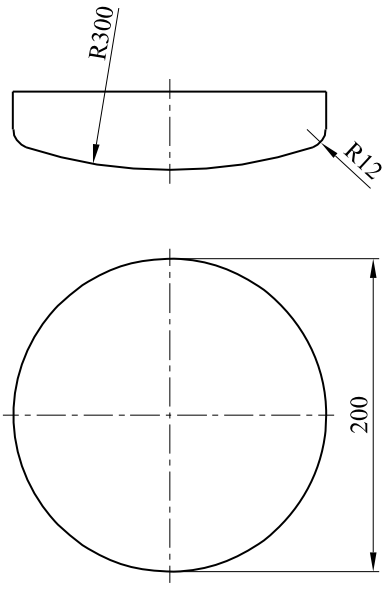


Figure 2 — Smaller seat loading pad

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

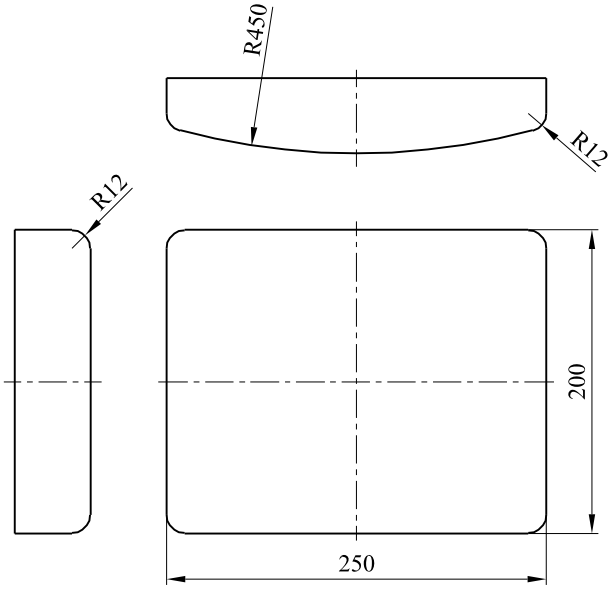


Figure 3 — Back loading pad

5.7 Arm rest durability 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.

Dimensions in millimetres

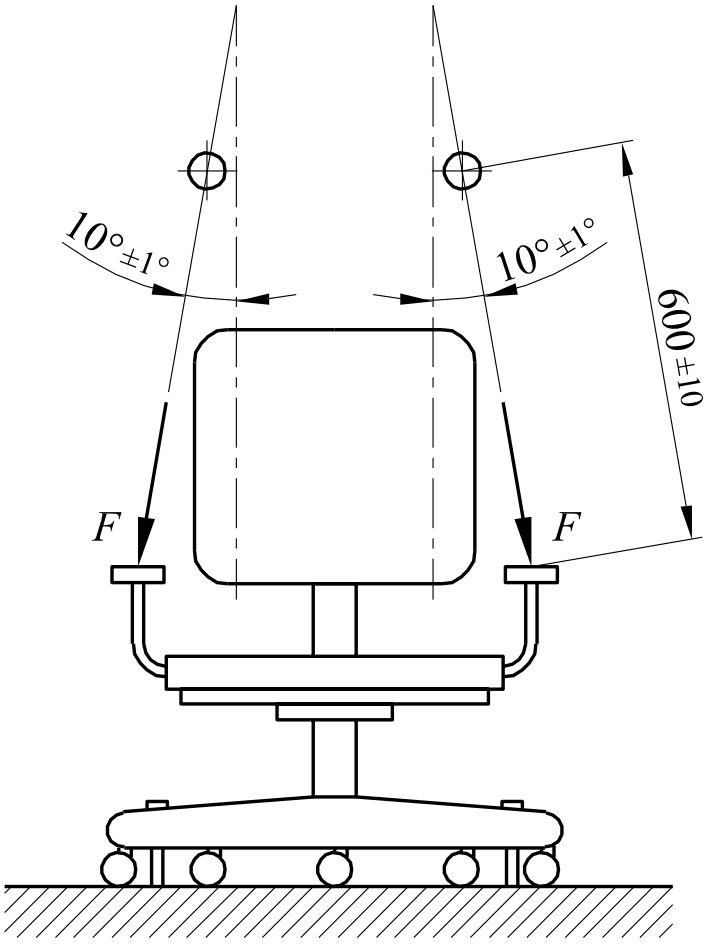


Figure 4 — Arm rest test principle

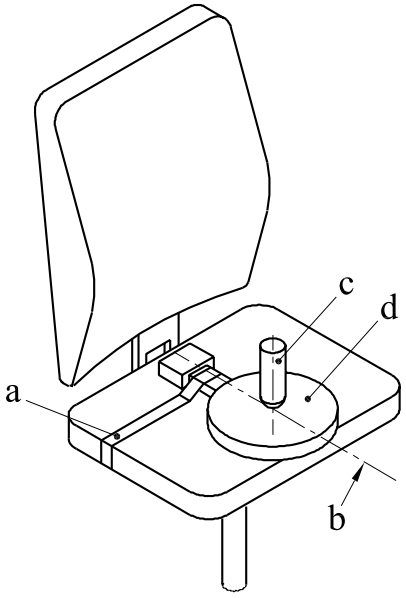
The apparatus shall be capable of applying the forces at varying angles to the vertical. It shall be adjustable both vertically and horizontally and set as specified in 7.3.2. The apparatus shall be capable of freely following the deformation of the arm rests during testing. The length of the loading pad shall be 100 mm with the force acting through the centre of its length.

5.8 Strap

A 50 mm wide strap capable of bearing a mass as specified in EN 1335-2:2009, Table A.1.

5.9 Stability loading device

A loading device in principle functioning as shown in Figure 5. For details of the design see Annex B.



Key

a hold down strap
b centreline of seat
c for details see Figure B.1
d for details see Figure B.2

Figure 5 — Stability loading device – principle

5.10 Loading discs

Loading discs each with a mass of 10 kg, a diameter of 350 mm and a thickness of 48 mm. The centre of gravity shall be in the centre of the disc.

5.11 Test surface for castor durability (and rolling resistance of the unloaded chair)

A horizontal smooth steel surface.

6 Loading points

6.1 Loading point "A"

The point in which the chair's axis of rotation intersects with the seat surface with the seat in a position as close as possible to the horizontal.

6.2 Loading point "B"

The point on the centreline of the back rest, 300 mm above loading point “A” (6.1) measured when the seat is loaded with 640 N through the seat loading pad.

6.3 Loading point "C"

A point in front of loading point “A” (6.1) along the centre line of the seat, 100 mm from the edge of the load bearing structure of the seat.

6.4 Loading point "D"

The point 150 mm to the right of loading point “A” (6.1).

6.5 Loading point "E"

The point 50 mm to the right of loading point “B” (6.2).

6.6 Loading point "F"

A point in front of loading point "D" (6.4) on a line parallel to the centre line, 100 mm from the edge of the load bearing structure of the seat.

6.7 Loading point "G"

The point 150 mm to the left of loading point “A” (6.1).

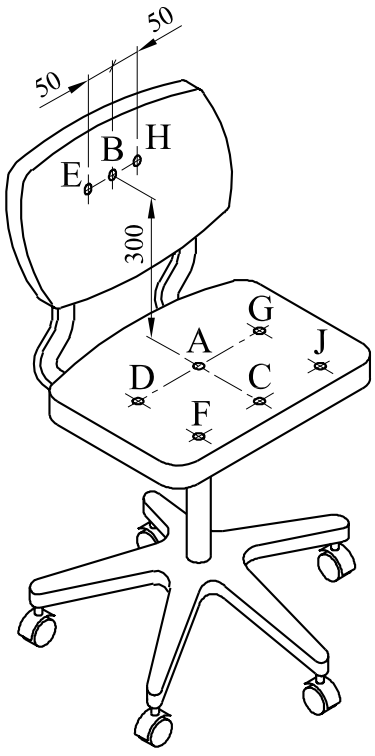
6.8 Loading point "H"

The point 50 mm to the left of loading point “B” (6.2).

6.9 Loading point "J"

A point in front of loading point "G" (6.7) on a line parallel to the centre line, 100 mm from the structure of the seat edge.

Dimensions in millimetres



Key

A	loading point "A"	D	loading point "D"	G	loading point "G"
B	loading point "B"	E	loading point "E"	H	loading point "H"
C	loading point "C"	F	loading point "F"	J	loading point "J"

Figure 6 — Loading points

7 Tests methods

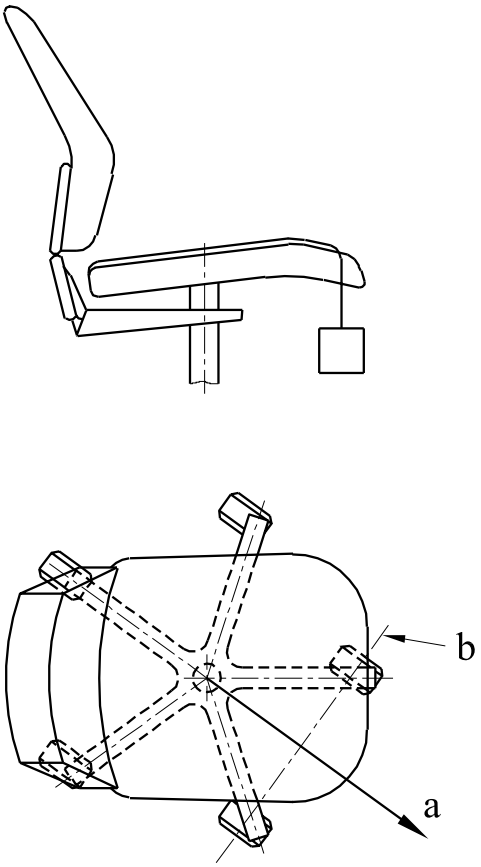
7.1 Stability

Position the chair on the test surface (see 5.1) with its components as specified in 4.1 and Table 1.

Record whether the chair overturns during the tests in 7.1.1 to 7.1.7.

7.1.1 Front edge overturning

Do not position the chair with the stops against the supporting points (3.5). Fix the strap (5.8) to the chair as shown in Figure 7, i.e. the force is applied at the point on the front edge that is furthest from the axis of rotation, and allow the mass M_1 to hang freely (see Figure 7).



Key
a position of the strap on the seat surface
b the tilting axis, castors in the most adverse position

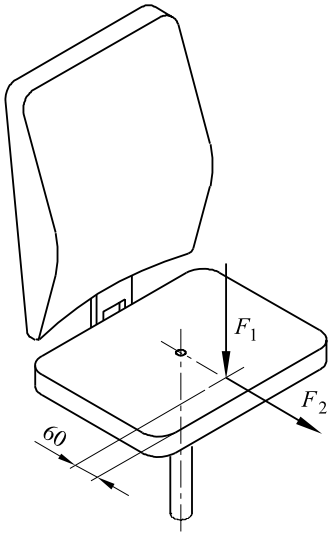
Figure 7 — Front edge overturning

7.1.2 Forwards overturning

Position the chair with two adjacent supporting points (3.5) on the front against the stops (5.2).

Apply by means of the stability loading device (5.9) a vertical force F_1 acting 60 mm from the front edge of the load bearing structure of the seat at those points most likely to result in overturning. Apply for at least 5 s a horizontal outwards force F_2 from the point on the seat surface where the vertical force is applied (see Figure 8).

Dimensions in millimetres



Key

F_1 vertical force

F_2 horizontal force

Figure 8 — Forward overturning

7.1.3 Forwards overturning for chairs with footrest

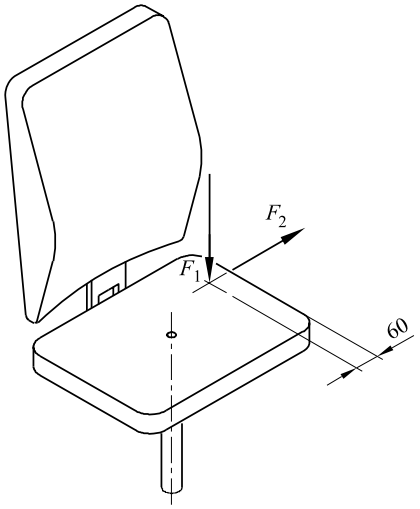
For chairs with footrests repeat the principle of 7.1.2 on the footrest. For round cross section ring shaped footrests, the vertical force F_1 shall be applied through the centre of the ring cross section.

7.1.4 Sideways overturning for chairs without arm rests

Position the chair with two adjacent supporting points (3.5) on one side against the stops (5.2).

Apply by means of the stability loading device (5.9) a vertical force F_1 acting 60 mm from the side edge of the load bearing structure of the seat at those points most likely to result in overturning. Apply for at least 5 s a horizontal sideways force F_2 outwards from the point on the seat surface where the vertical force is applied, (see Figure 9).

Dimensions in millimetres



Key

F_1 vertical force

F_2 horizontal force

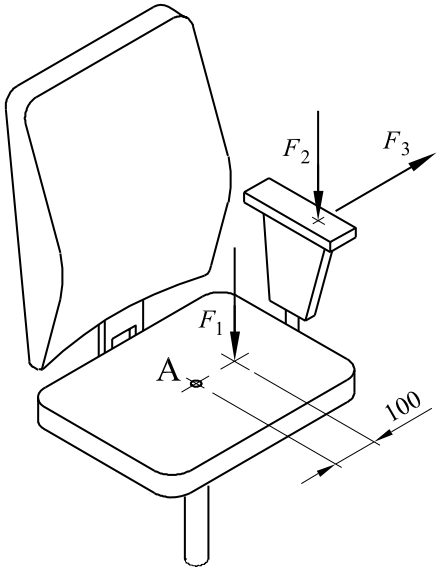
Figure 9 — Sideways overturning for chairs without arm rests

7.1.5 Sideways overturning for chairs with arm rests

Position the chair with two adjacent supporting points (3.5) on one side against the stops (5.2).

Apply by means of the stability loading device (5.9) a vertical force F_1 acting at a point 100 mm from the fore and aft centre line of the seat at the side where the supporting points (3.5) are restrained (see Figure 10) and between 175 mm and 250 mm forward of the rear edge of the seat. Apply a vertical downward force F_2 acting at points on the arm rest which is on the same side as the restrained supporting points (3.5) up to a maximum 40 mm inwards from the outer edge of the upper surface of the arm rest, but not beyond the centre of the arm rest, and at the most adverse position along its length. Apply a horizontal sideways force F_3 outwards from the same point for at least 5 s (see Figure 10).

Dimensions in millimetres



Key

A seat loading point (6.1)
F_1 vertical force
F_2 vertical force
F_3 horizontal force

Figure 10 — Sideways overturning for chairs with arm rests

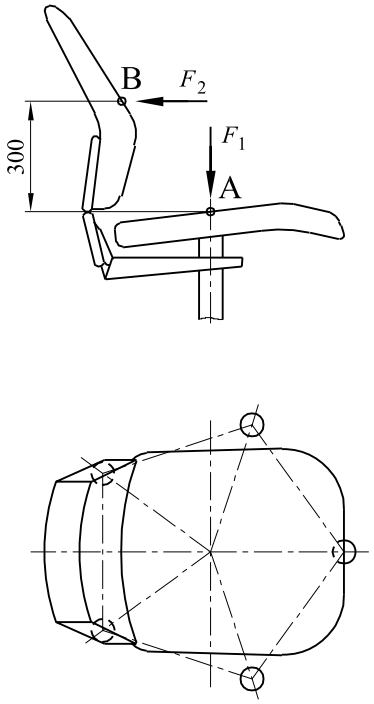
7.1.6 Rearwards overturning for chairs without back rest inclination

Position the chair with two adjacent supporting points (3.5) on the back against the stops (5.2). When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration.

A vertical force F_1 shall be applied at point "A" (6.1) and a horizontal force F_2 shall be applied at point "B" (6.2), (see Figure 11).

If the back rest pad is pivoting around a horizontal axis above the height of the seat and is free to move, the horizontal force shall be applied on the axis. If height adjustable, the axis shall be set as close as possible to 300 mm above point "A" (6.1).

Dimensions in millimetres



Key

A seat loading point (6.1)
B back loading point (6.2)
F_1 vertical force
F_2 horizontal force

Figure 11 — Rearward overturning for chairs without back rest inclination

7.1.7 Rearwards overturning for chairs with adjustable back rest inclination

Do not position the chair with the supporting points (3.5) against the stops (5.2). When an independent lumbar adjustment is fitted it shall be set in the most adverse configuration.

Load the chair with discs (5.10) so that the discs are firmly settled against the back rest (see Figure 12). If the height of the stack of discs exceeds the height of the back rest, prevent the upper discs from sliding off by the use of a light support.

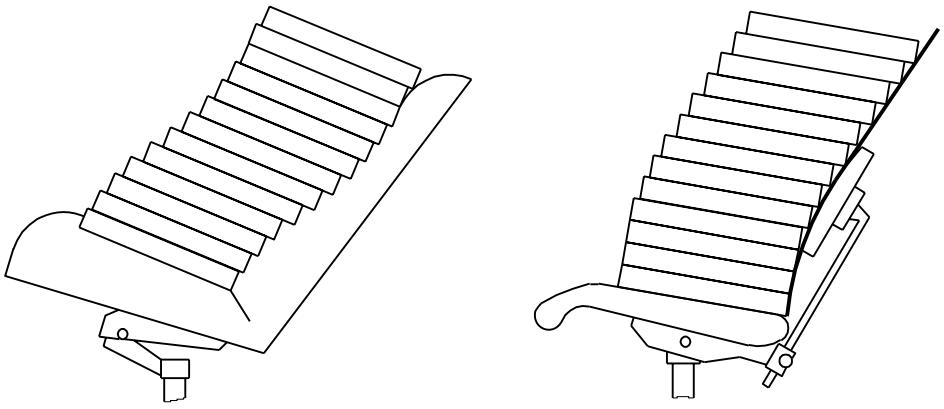


Figure 12 — Rearward overturning for chairs with adjustable back rest inclination

7.2 Static load tests

Position the chair and its components as specified in 4.1 and Table 1 on the test surface (5.1).

7.2.1 Seat front edge static load test

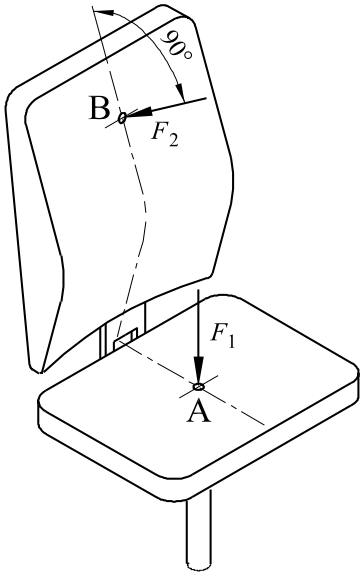
Position the smaller seat loading pad (5.4) at loading point "F" or "J" (6.6 or 6.9). Apply a vertical downward force F_1 through the centre of the loading pad.

7.2.2 Combined seat and back static load test

Prevent the chair from moving rearwards by placing stops (5.2) behind two adjacent supporting points (3.5) at the rear of the chair.

Chairs with a locking device(s) for seat and/or back rest angle movements shall be tested first with the device(s) locked for half of the cycles and then with the device(s) unlocked for the other half of the cycles. For the first half of the cycles the back rest shall be in the upright position.

Apply a vertical force F_1 through the seat loading pad (5.3) at point "A" (6.1). Keep the seat loaded and apply a force F_2 through the centre of the back loading pad (5.6) at point "B" (6.2). When fully loaded the force shall act at 90° ± 10° to the back rest plane (see Figure 13). If the chair tends to overturn reduce the back rest force and report the actual force. Remove the back force and then the seat force.



Key

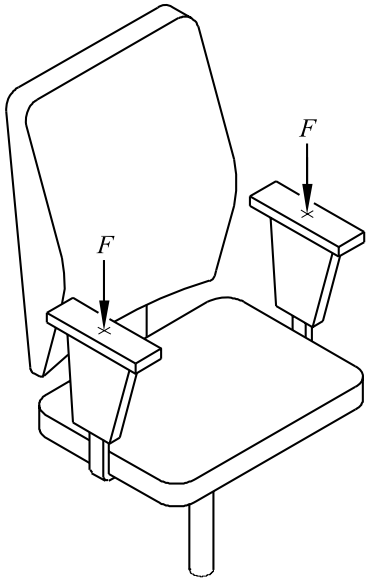
A seat loading point (6.1)
B back loading point (6.2)
F_1 vertical force
F_2 perpendicular force

Figure 13 — Combined seat and back static load test

7.2.3 Arm rest downward static load test – central

The arm rests shall be loaded vertically by means of the local loading pads (5.5). The loading points shall be at the mid point of the arm rest length (3.4) and centred side to side.

Apply the force to both arm rests simultaneously (see Figure 14).



Key

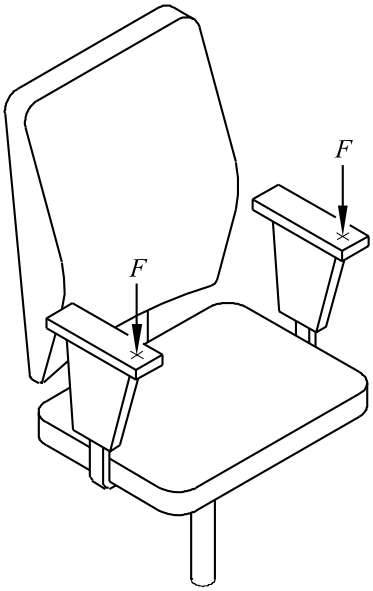
F vertical force

Figure 14 — Arm rest downward static load test – central

7.2.4 Arm rest downward static load test – front

The arm rests shall be loaded vertically by means of the local loading pads (5.5). The loading points shall be 75 mm from the front edge and centred side to side.

Apply the force to both arm rests simultaneously (see Figure 15).



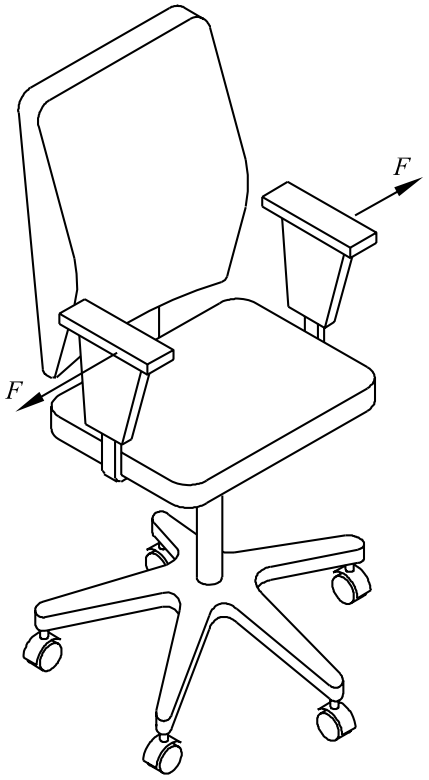
Key

F vertical force

Figure 15 — Arm rest downward static load test – front

7.2.5 Arm rest sideways static load test

Apply an outward horizontal force to both arm rests simultaneously. Apply the forces to the edge of the arm rest at the point along the arm rest most likely to cause failure but not less than 75 mm from the front or rear edge (see Figure 16).



Key

F horizontal force

Figure 16 — Arm rest sideways static load test

7.2.6 Foot rest static load test

Apply a vertical force acting 80 mm from front edge of the load bearing structure of the foot rest at those points most likely to cause failure. For round cross section ring shaped footrests, the force shall be applied through the centre of the ring cross section. If the chair tends to overturn load the seat to prevent overturning and report this.

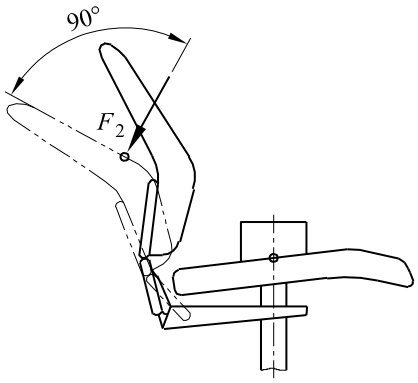
7.3 Durability tests

Position the chair and its components as specified in 4.1 and Table 1 on the test surface (5.1) except for the castor and chair base durability test (7.3.5).

7.3.1 Seat and back durability

The upper part of the chair shall be positioned so that the centre of the back rest is midway between two adjacent supporting points (3.5) of the base with stops (5.2) against these supporting points.

The seat load shall be applied vertically using the seat loading pad (5.3). The back rest force shall be applied at an angle of 90° ± 10° to the back rest when fully loaded (see Figure 17) using the back loading pad (5.6).



Key

F perpendicular force

Figure 17 — Backrest force application – principle

All chairs shall be tested to steps 1 to 5 (see Table 2).

Chairs with a locking device(s) for seat and/or back rest angle movements shall be tested in step 2 first with the device(s) locked for half of the cycles and then with the device(s) unlocked for the other half of the cycles. For the first half of the cycles the back rest shall be in the upright position. In steps 3, 4 and 5 the mechanism shall be set free to move.

One cycle shall consist of the application and removal of the force(s) at the respective loading point(s).

Each step shall be completed before going to the next.

First the seat force shall be applied and maintained while the back rest force is applied.

If the back rest pad is pivoting around a horizontal axis above the height of the seat and is free to move, the horizontal force shall be applied on the axis. If height adjustable, the axis shall be set as close as possible to 300 mm above point "A" (6.1). If the axis cannot be adjusted to 300 mm, adjust the force to produce the same bending moment.

Table 2 — Seat and back durability test

Step	**Loading point** (see Figure 6)
1	A
2	C-B
3	J-E
4	F-H
5	D-G

7.3.2 Arm rest durability

Apply simultaneously and cyclically the force on each arm rest at points 100 mm behind the foremost point of the arm rest length (see 3.4). Apply a force of (10 ± 5) N through a loading device in principle functioning as shown in Figure 4. With this force applied adjust the apparatus so that each "arm" of the test apparatus has an angle of 10° ± 1° to the vertical. The length of the "arm" of the test apparatus shall be 600 mm ± 10 mm. The arm rests shall be allowed to deform freely.

7.3.3 Swivel test

The base of the chair shall be secured on a rotating table with a test surface (see 5.1) so that the rotating axis of the chair coincides with the rotating axis of the table. The upper part of the chair shall be loosely fixed in such a way as not to hinder the rotation of the base. Load the seat in loading point A (6.1) with a mass M_1 and in loading point C (6.3) with a mass M_2 or any equivalent loading which will result in the same downwards force and bending moment on the chair. The angle of rotation shall be 360° at a rate of (10 ± 5) cycles/minute. Change direction after each rotation.

7.3.4 Foot rest durability

Using the local loading pad (5.5) apply a vertical downward force to the foot rest at the point most likely to cause failure but not less than 80 mm from the front edge. For round cross section ring shaped foot rests, the force shall be applied through the centre of the ring cross section.

7.3.5 Castor and chair base durability

This test does not apply to chairs with castors which are braked when the chair is loaded.

The chair shall be placed on a rotating table with a test surface (see 5.11) so that the rotating axis of the chair coincides with the rotating axis of the table. Load the seat in point A with M_1. The base shall be loosely fixed in such a way that there is no rotation of the base but that the natural movements of the castors during testing are not prevented. The castors shall be left free to swivel, the table shall be rotated with a rate of 6 cycles per minute. The angle of rotation shall be from 0° to 180° and back. One rotation forward and one rotation backward constitutes one cycle.

Alternatively attach the chair to a device that provides a linear movement of (1 000 ± 250) mm and a test surface (see 5.11). Load the seat in point "A" with M_1. The base shall be loosely fixed in such a way that there is no rotation of the base but that the natural movements of the castors during testing are not prevented. The castors shall be left free to swivel, the device shall move with a rate of 6 cycles per minute. One movement forward and one movement backward constitutes one cycle.

NOTE For both alternatives it is recommended to perform the test with a speed as slow as possible with a short break when the device changes direction.

7.4 Rolling resistance of the unloaded chair

The chair shall be placed on the test surface (see 5.1) and shall be pushed or pulled over a distance of at least 550 mm. A speed of (50 ± 5) mm/s shall be maintained over the measuring distance. The force shall be applied at a height of (200 ± 50) mm above the test surface.

Record the force used to push or to pull the chair over the distance from 250 mm to 500 mm as the rolling resistance.

8 Test report

The test report shall include at least the following information:

a) reference to this standard;

b) details of the chair tested;

c) any defects observed before testing;

d) test results according to Clause 7;

e) details of any deviations from this standard;

f) name and address of the test facility;

g) dates of tests.

Annex A
(normative)

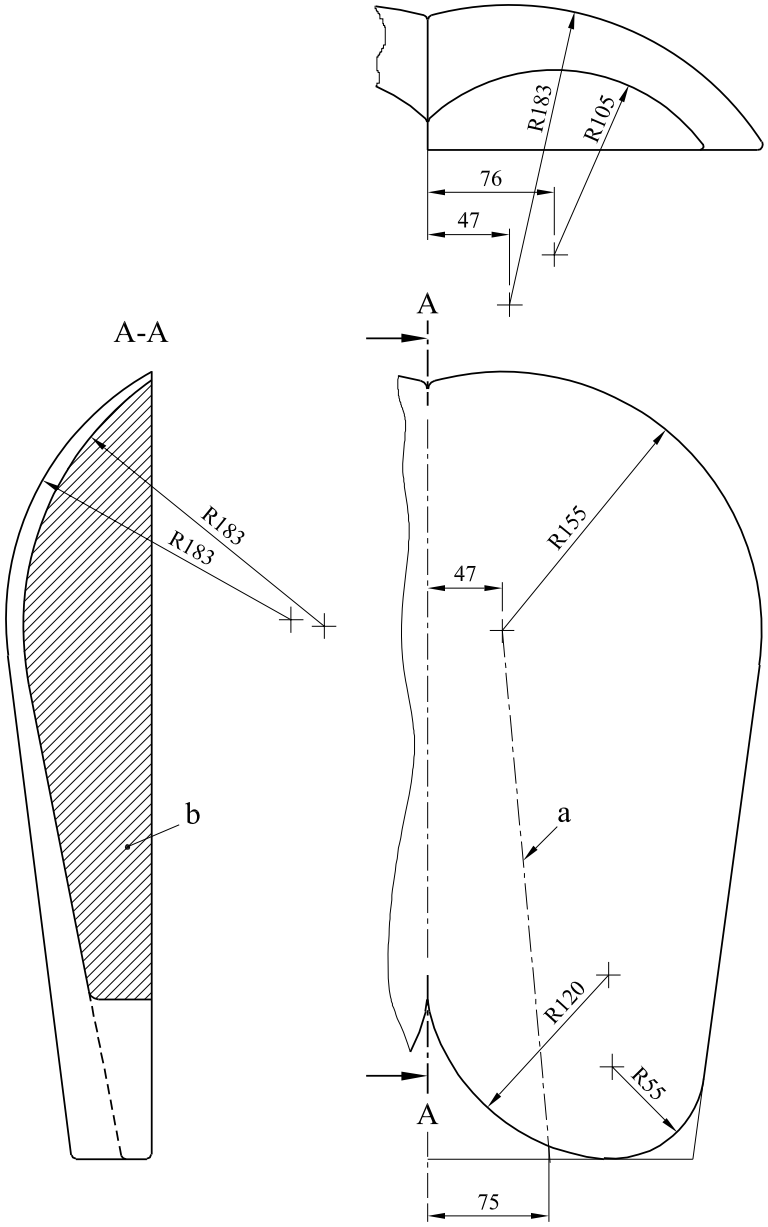
Seat loading pad data

The seat loading pad specified in 5.3 of this standard currently exists in two versions:

1) machined in hardwood, as shown in Figure A.1;

2) moulded from fibre glass, as shown in Figure A.2.

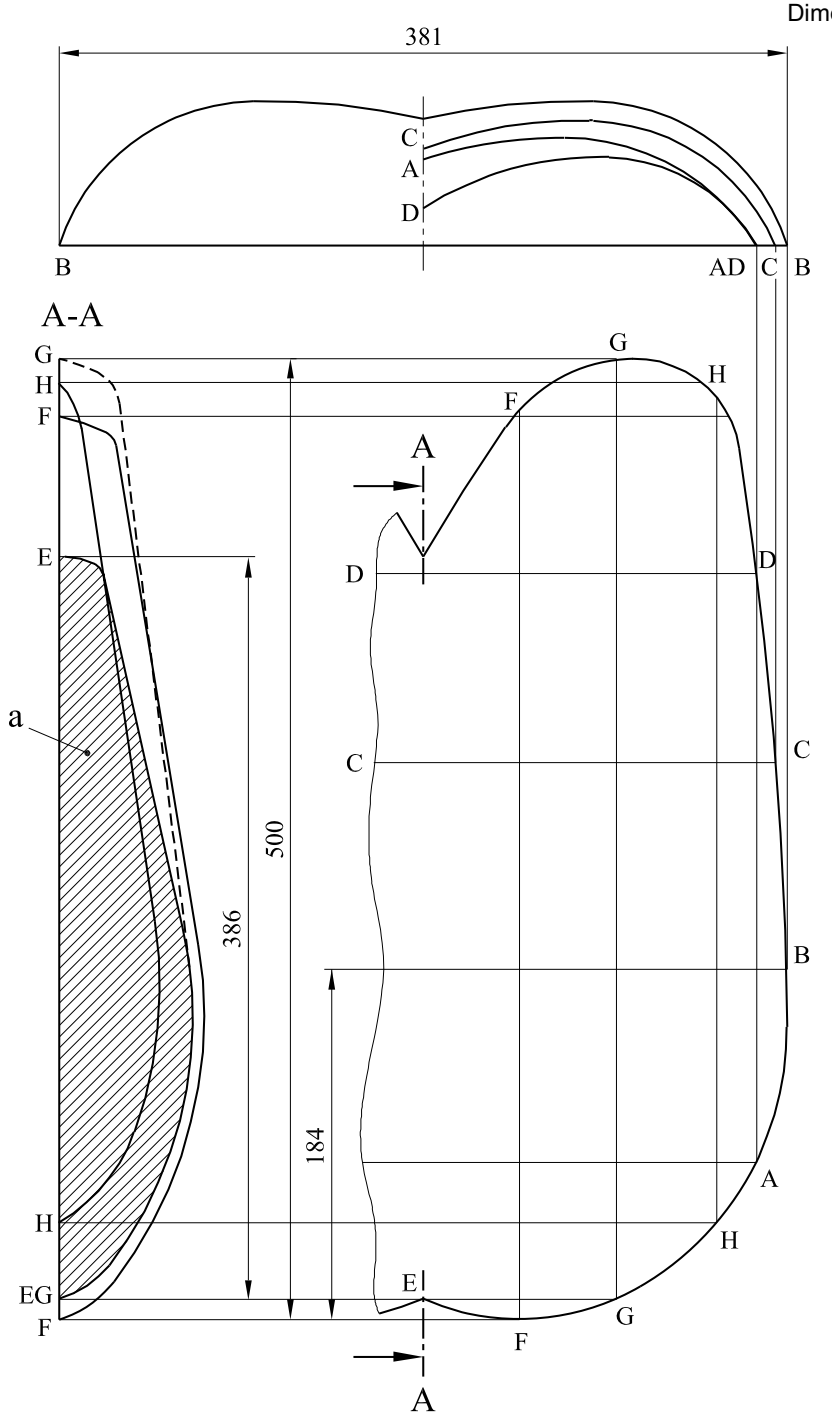
Dimensions in millimetres



Key
a axis of the cone
b centre section cross hatched

Figure A.1 — Seat loading pad geometry – Hardwood construction

Dimensions in millimetres



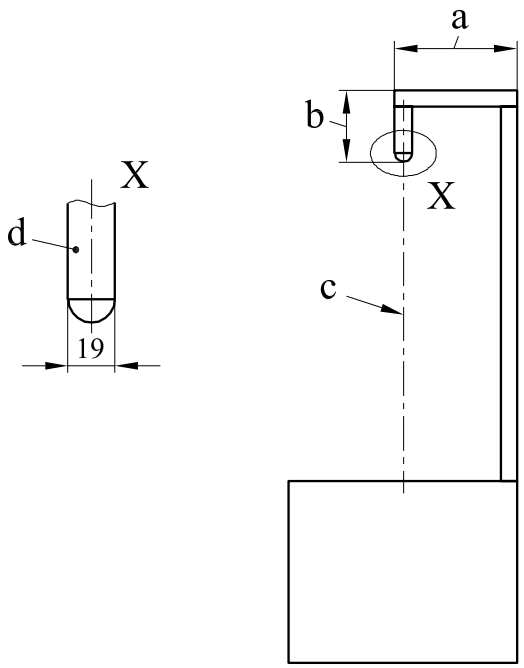
Key
a centre section cross hatched

Figure A.2 — Seat loading pad geometry – Moulded fibre glass construction

Annex B
(normative)

Stability loading device data

Dimensions in millimetres



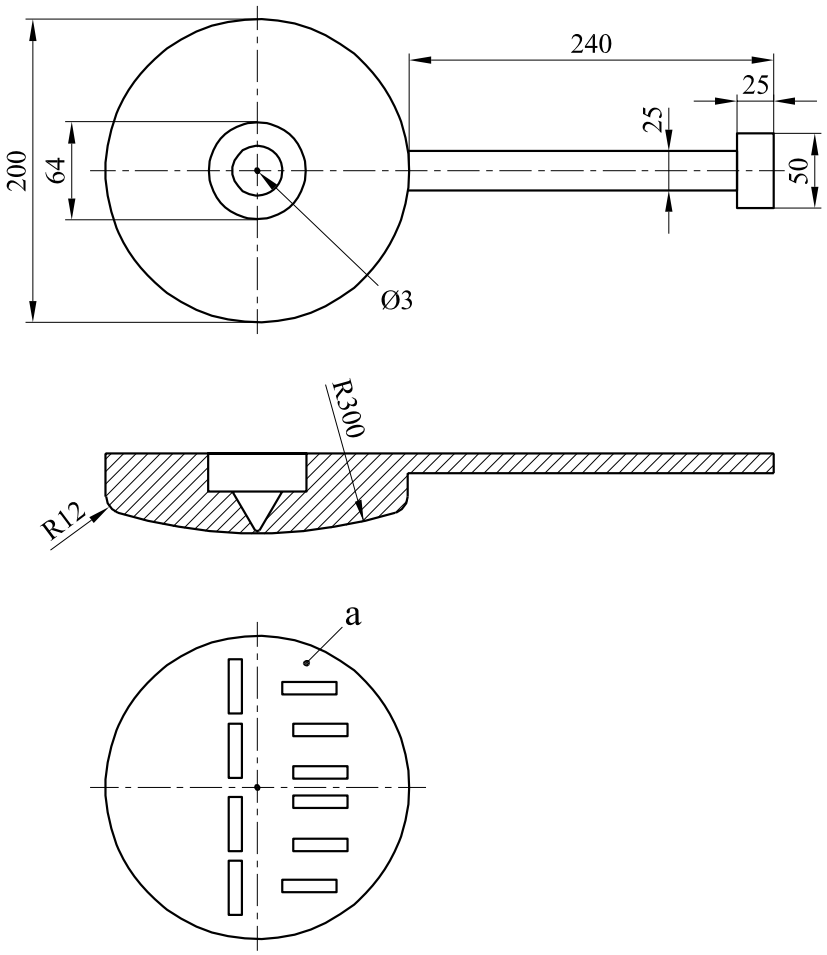
Key

Total mass 600 N

a sufficient to clear all foam and fabric and allow for set back
b height of loading point F_2 horizontal outwards
c centreline to point and centre of gravity of weight
d rod with spherical tip

Figure B.1 — Front stability loading fixture

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 B.2 — Front stability loading disk

Annex C
(informative)

Loads, masses and cycles for functional tests

The loads, masses and cycles are based upon use for 8 h a day by persons weighing up to 110 kg. For more severe conditions of use increased requirements will be necessary.

Table C.1 — Loads, masses and cycles for functional tests

Clauses given in EN 1335-3:2009	Test		Loads	Cycles
7.2.4	Arm rest downward static load test – front		450 N	5
7.2.5	Arm rest sideways static load test		400 N	10
7.3.3	Swivel test	M_1	60 kg	120 000
		M_2	35 kg	
7.3.4	Foot rest durability		900 N	50 000
7.3.5	Castor and chair base durability	M_1	110 kg	36 000

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