

BS EN 13759:2012



BSI Standards Publication

Furniture — Operating mechanisms for seating and sofa-beds — Test methods

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National foreword

This British Standard is the UK implementation of EN 13759:2012. It supersedes DD ENV 13759:2001 which is withdrawn.

BSI, as a member of CEN, is obliged to publish EN 13759 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK voted against its approval as a European Standard.

The reason for this vote by the UK Technical subcommittee FW/0/2, Domestic and Contract Furniture is due to concerns that the test dummy defined in clause 4.1 might not be suitable for all types of reclining chair.

The UK participation in its preparation was entrusted by Technical Committee FW/0, Furniture, to subcommittee FW/0/2, Domestic and Contract Furniture.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Amendments issued since publication

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English Version

**Furniture - Operating mechanisms for seating and sofa-beds -
Test methods**Meubles - Mécanismes de manoeuvre des sièges et des
canapés - Méthodes d'essaiMöbel - Funktionsmechaniken für Sitzmöbel und
Liegesofas - Prüfverfahren

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

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Foreword

This document (EN 13759:2012) 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of an identical text or by endorsement, at the latest by October 2012, and conflicting national standards shall be withdrawn at the latest by October 2012.

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 ENV 13759:2000.

Compared to ENV 13759:2000 the following modifications have been made:

- a) Modification of the title to better reflect the content of the standard;
- b) The test dummy has been totally revised to better integrate with all types of seating;
- c) The test dummy loading has been modified to a single loading equivalent to a 110 kg person;
- d) A note has been added to give guidance on how to test chairs for heavier users;
- e) A duty cycle has been added for powered reclining mechanisms.

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, Croatia, 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, Turkey and the United Kingdom.

1 Scope

This European Standard specifies test methods for the determination of the durability of hand and power operated reclining mechanisms for adult seating.

It also specifies test methods for the determination of the durability of mechanisms for converting sofas and chairs into beds.

The test methods are based on use by a person weighing up to 110 kg.

Requirements for the durability of reclining mechanisms are not included within this standard.

Test methods for strength and durability of the structure are not included.

It does not apply to the safety of electrically driven seating which is covered by the machinery, low voltage and EMC directives.

It does not apply to tilting and reclining mechanisms fitted to work chairs.

2 Terms and definitions

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

2.1

work chair

chair, with or without arm rests, for use by one adult in the office or home office (for example for 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

2.2

convertible sofa-bed

item of seating that utilises a mechanism to convert it into a bed

2.3

reclining chair

item of seating that features a backrest that can be adjusted from the normal upright position to a reclined position

Note 1 to entry: The item of seating may also feature a footrest that raises as the back is reclined. The mechanism may be motorised, manual or gravity activated.

2.4

rise and recline chair

item of seating that, in addition to the recline function, features a mechanism to raise the seat to ease the process of getting out of the seat

2.5

duty cycle

length of time an electrically powered operating mechanism may be operated without impairing its useful life

Note 1 to entry: The duty cycle includes the amount of time the drive system may be operated as well as the amount of time it must not be operated to allow the drive system to cool sufficiently before it is activated again.

3 General test conditions

3.1 Preliminary preparation

The furniture shall be tested in the condition in which it is delivered. Where assembly is required, the furniture shall be assembled according to the instructions supplied. If the test unit can be assembled in different ways, the most adverse configuration shall be used. If assembly instructions are not supplied, the assembly method shall be recorded in the report. Fittings shall be tightened before testing and shall not be re-tightened unless specifically required by the manufacturer.

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

3.2 Tolerances

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

- Forces $\pm 5\%$ of the nominal force;
- Velocities $\pm 5\%$ of the nominal velocity;
- Masses $\pm 1\%$ of the nominal mass;
- Dimensions ± 1 mm of the nominal dimension.

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

4 Test apparatus

4.1 Test dummy

For seating occupied during operation the test dummy shown in Figure 1 shall be utilised. The test dummy shall be manufactured from a smooth, rigid material.

The sections shall be connected together via a hinging mechanism that does not inhibit the movement of the dummy sections relative to each other.

The total mass of the dummy including any hinge mechanisms shall be 100 kg.

For seating occupied during operation, the weight distribution of the sections of the test dummy shall be in accordance with Table 1:

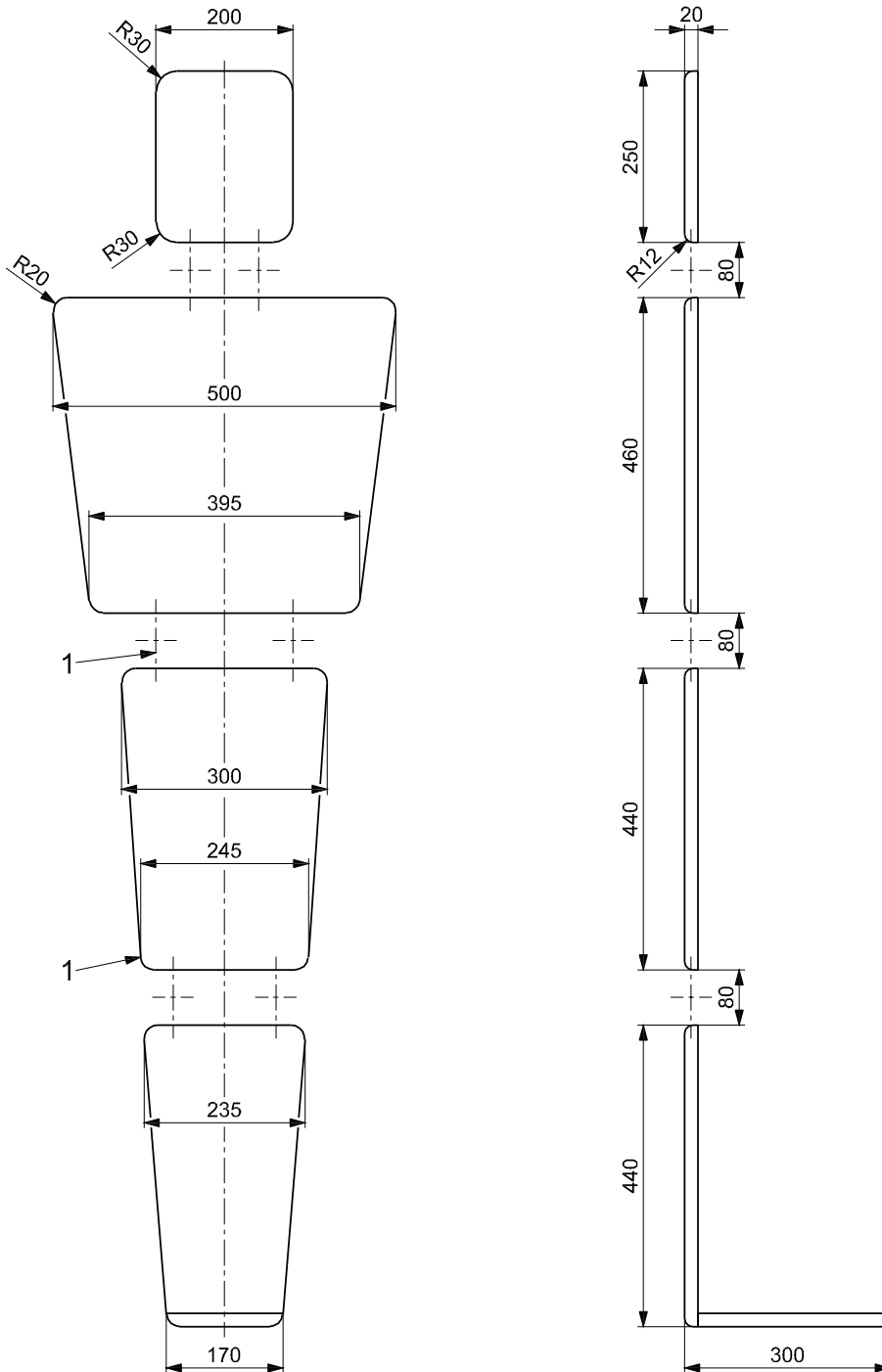
Table 1

Test dummy section including appropriate hinge mechanism	Weight distribution
Head	5 %
Upper body	54 %
Upper leg	24 %
Lower leg	17 %

For the dummy shown in Figure 1, all dimensions shall be subject to a ± 2 mm tolerance. All edges and corners in contact with the item or seating shall have a 12 mm radius.

NOTE For items of furniture designed to be used by heavier people, the weight of the user can be distributed using the weight distribution pattern shown.

Dimensions in millimetres



Key

1 Hinge point

Figure 1 — Test dummy

5 Test procedure

5.1 Functional assessment

In order to determine the appropriate test procedure(s) for the item of seating, the functional operation(s) shall be examined.

The examination shall be used to describe the manner of operation of the item of seating. The description shall include at least the following:

- means of operation (e.g. power, body movement),
- stages of operation,
- time taken to carry out operation(s), and
- wherever possible, the forces exerted.

For seating:

- a) actions required to recline/tilt the item of seating (including the release of locking devices), such as pressing the arms and thereby reducing the load on the seat, or other ways of moving the weight of the test person from one part of the item of seating to another;
- b) actions required to bring the item of seating to the upright position including for example, an extra load being applied to the foot rest, or other ways of moving the weight of the test person from one part of the item of seating to another.

For convertible sofa-beds:

- c) actions required to convert the bed into a sofa,
- d) actions required to convert a sofa into a bed.

5.2 Durability test

5.2.1 Set up procedure

Testing shall be carried out as closely to the manner of operation described (see 5.1) as is practically possible, and sufficiently slowly to ensure that kinetic heating does not occur.

For electrically operated seating, the cycle rate shall be the cycle rate recommended by the manufacturer. When the duty cycle is not recommended by the manufacturer, the rate shall be "three cycles on and then off for the equivalent time it takes to run fifteen cycles".

NOTE The duty cycle may be increased when temperature control is agreed upon with the manufacturer.

5.2.2 Furniture not occupied during operation of mechanism

The mechanisms shall be operated for the required number of cycles.

5.2.3 Furniture occupied during operation of the mechanism

The mechanisms shall be operated with the item of seating loaded in accordance with 4.1 for the required number of cycles.

Seating which can be operated both when the item of seating is occupied and when there is no one in the item of seating shall be tested as described for furniture occupied during operation of the mechanism.

6 Test report

The test report shall include at least the following information:

- a) a reference to this European Standard;
- b) details of the item of furniture and mechanism tested, including the manner of operation;
- c) details of defects observed before testing;
- d) a description of the test procedure and equipment;
- e) the test results;
- f) the name and address of the test facility;
- g) the date of the test.

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