



SLOVENSKI STANDARD

SIST EN 747-2:2012

01-november-2012

Nadomešča:

SIST EN 13453-2:2004

SIST EN 747-2:2007

Pohištvo - Pogradi in visoke postelje - 2. del: Preskusne metode

Furniture - Bunk beds and high beds - Part 2: Test methods

Möbel - Etagenbetten und Hochbetten - Teil 2: Prüfverfahren

Meubles - Lits superposés et lits surélevés - Partie 2: Méthodes d'essai

[SIST EN 747-2:2012](#)

Ta slovenski standard je istoveten z: EN 747-2:2012

<https://standards.iteh.ai/catalog/standards/sist/756d826c-24b-41d6-857c-e73cab52c365/sist-en-747-2-2012>

ICS:

97.140

Pohištvo

Furniture

SIST EN 747-2:2012

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 747-2:2012](https://standards.iteh.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c365/sist-en-747-2-2012)

<https://standards.iteh.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c365/sist-en-747-2-2012>

EUROPEAN STANDARD

EN 747-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2012

ICS 97.140

Supersedes EN 13453-2:2004, EN 747-2:2007

English Version

Furniture - Bunk beds and high beds - Part 2: Test methods

Meubles - Lits superposés et lits surélevés - Partie 2:
Méthodes d'essaiMöbel - Etagenbetten und Hochbetten - Teil 2:
Prüfverfahren

This European Standard was approved by CEN on 8 March 2012.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

[SIST EN 747-2:2012](https://standards.iteh.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c365/sist-en-747-2-2012)

<https://standards.iteh.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c365/sist-en-747-2-2012>



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 General test conditions	5
3.1 Preliminary preparation	5
3.2 Application of forces	5
3.3 Tolerances	6
4 Test equipment	6
4.1 General.....	6
4.2 Measuring cones.....	6
4.3 Bed base impactor.....	7
4.3.1 Bed base impactor (see Figure 2)	7
4.3.2 Springs.....	7
4.3.3 Striking surface.....	7
4.4 Loading pads.....	7
4.5 Test mattress.....	8
4.6 Test mass	8
4.7 Stops	9
4.8 Floor surface	9
4.9 Tread impactor	9
5 Test procedures	9
5.1 Inspection before testing	9
5.2 Inspection of product	10
5.3 Measuring of holes, gaps and openings	10
5.4 Strength tests.....	10
5.4.1 Positioning of the bed	10
5.4.2 Static load on safety barriers	10
5.4.3 Upwards and downwards static load on bed base	11
5.4.4 Impact test on bed base	11
5.4.5 Durability test on bed base.....	12
5.5 Durability test of frame and fastenings	13
5.6 Ladders or other means of access	13
5.6.1 Vertical static load on treads.....	13
5.6.2 Horizontal static loads on treads	13
5.6.3 Durability of treads	14
5.6.4 Tread impact test	14
5.7 Stability test.....	15
5.8 Fastening of the upper bed to the lower bed.....	15
6 Test report	15

iTech STANDARD PREVIEW
(standards.itech.ai)

SIST EN 747-2:2012
<https://standards.itech.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c305/sist-en-747-2-2012>

Foreword

This document (EN 747-2:2012) 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 EN 747-2:2007 and EN 13453-2:2004.

Compared to EN 747-2:2007 and EN 13453-2:2004, the following modifications have been made:

- a) Subclause 4.2 *Measuring cones*: A 7 mm cone has been added.
- b) Subclause 5.3 *Measuring of holes, gaps and openings*: includes measuring of 7 mm holes.
- c) Subclause 5.4.3 *Upwards and downwards static load on bed base*: the downwards force has been increased to 1 200 N (from EN 13453).
- d) Subclause 5.4.5 *Durability test on bed base*: new test (from EN 13453).
- e) Subclause 5.6.1 *Vertical static load on treads*: the force has been increased from 1 000 N to 1 200 N (from EN 13453).
- f) Subclause 5.7 *Stability test*: the horizontal force has been changed from an overturning moment of 170 Nm to a horizontal force of 120 N at the points most likely to cause overturning.

EN 747 is divided into the following parts:

- EN 747-1, *Furniture — Bunk beds and high beds — Part 1: Safety, strength and durability requirements*;
- EN 747-2, *Furniture — Bunk beds and high beds — Part 2: Test methods*.

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.

EN 747-2:2012 (E)**Introduction**

This part of EN 747 describes a number of tests consisting of the application, to various parts of bunk beds and high beds, of loads or forces applied by one adult occupant per bed during normal functional use. It also deals with misuses that can be reasonably expected to occur.

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

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

[SIST EN 747-2:2012](https://standards.iteh.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c365/sist-en-747-2-2012)

<https://standards.iteh.ai/catalog/standards/sist/65fad8e6-a34b-41d6-857c-e73cab52c365/sist-en-747-2-2012>

1 Scope

This European Standard specifies test methods for the safety, strength and durability of bunk beds and high beds for domestic and non-domestic use. The loads and forces in the strength and durability tests apply to beds with an internal length greater than 140 cm and a maximum bed base width of 120 cm.

The tests are designed to be applied to a bed that is fully assembled and ready for use.

The applicable safety requirements are given in EN 747-1.

2 Normative references

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

EN 747-1:2012, *Furniture — Bunk beds and high beds — Part 1: Safety, strength and durability requirements*

EN ISO 2439:2008, *Flexible cellular polymeric materials — Determination of hardness (indentation technique) (ISO 2439:2008)*

3 General test conditions

3.1 Preliminary preparation

For furniture that includes hygroscopic materials, at least one week in normal indoor conditions shall have elapsed between manufacturing (or assembly) and testing.

For all other furniture, at least 48 hours in normal indoor conditions shall have elapsed prior to testing.

The sample shall be tested as delivered. If the sample is a knock-down type, it shall be assembled according to the instructions supplied with it. If the instructions allow for different combinations, the most adverse combination shall be used for each test.

Samples intended to be fastened together in pairs or attached to the structure of a building shall be tested as single, free-standing samples unless the instructions specifically require attachment to another sample or the building structure.

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

Knock-down fittings shall be tightened before testing and shall not be re-tightened throughout the testing procedures.

The tests shall be carried out on the same sample and following the order of the clauses of EN 747-1. If a test cannot be carried out as specified in this standard, e.g. because a loading pad cannot be used for the application of a force due to the design of the product, the test shall be carried out as closely as possible to the specified procedure.

3.2 Application of forces

The test forces in durability and static load tests shall be applied sufficiently slowly to ensure that negligible dynamic load is applied.

EN 747-2:2012 (E)

The forces in durability tests shall be applied sufficiently slowly to ensure that kinetic heating does not occur.

Unless otherwise specified, static loads shall be maintained for (10 ± 2) s. Unless otherwise specified, durability loads shall be applied for (2 ± 1) s.

3.3 Tolerances

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

- all forces shall have an accuracy of $\pm 5\%$ of the nominal force;
- all masses shall have an accuracy of $\pm 1\%$ of the nominal mass;
- all dimensions shall have an accuracy of ± 1 mm of the nominal dimension;
- all angles shall have an accuracy of $\pm 2^\circ$ of the nominal angle.

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

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

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

4 Test equipment

iTeh STANDARD PREVIEW
(standards.iteh.ai)

4.1 General

The test forces may, unless otherwise stated, be applied by any suitable device as results only depend on correctly applied forces and loads and not on the apparatus.

The equipment shall be capable of following the deformation of the unit/component during testing so that the loads are always applied at specified points and in specified directions.

4.2 Measuring cones

Cones with an angle of $(30 \pm 1)^\circ$ made of plastic or some other hard, smooth material (see Figure 1). There shall be six cones with the diameters 5 mm, 7 mm, 12 mm, 25 mm, 60 mm and 75 mm.

The 5 mm, 7 mm, 25 mm and 75 mm cone diameters shall have tolerances of $(0/-0,1)$ mm.

The 12 mm and 60 mm cone diameters shall have tolerances of $(0/+0,1)$ mm.

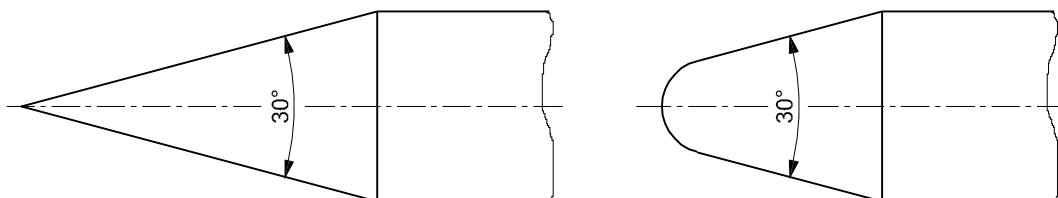


Figure 1 — Examples of measuring cones

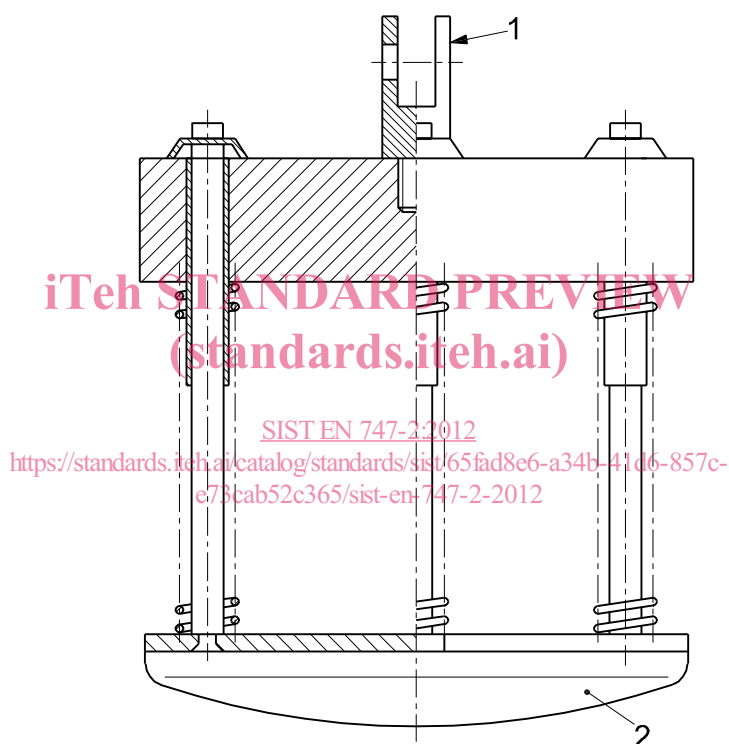
4.3 Bed base impactor

4.3.1 Bed base impactor (see Figure 2)

Approximately 200 mm in diameter, separated from the striking surface by helical compression springs and free to move relative to it on a line perpendicular to the plane of the central area of the striking surface (see Figure 2). The body and associated parts minus the springs shall have a mass of $(17 \pm 0,1)$ kg and the whole apparatus, including mass, springs and striking surface, shall have a mass of $(25 \pm 0,1)$ kg.

4.3.2 Springs

Springs shall be such that the combined spring system has a nominal spring rate of (7 ± 2) N/mm and the total friction resistance of the moving parts is less than 1 N. The spring system shall be compressed to an initial load of $(1\ 040 \pm 5)$ N (measured statically), and the amount of spring compression movement available from the initial compression point to the point where the springs become fully closed shall not be less than 60 mm.



Key

- 1 Connecting part of the lifting device which shall not restrain the free fall
- 2 Striking surface

Figure 2 — Bed base impactor

4.3.3 Striking surface

Rigid and circular object, 200 mm in diameter, the face of which has a convex spherical curvature of a 300 mm radius with a 12 mm front edge radius (see Figure 3).

4.4 Loading pads

4.4.1 Rigid and circular object, 200 mm in diameter, the face of which has a convex spherical curvature of a 300 mm radius with a 12 mm front edge radius (see Figure 3).