



SLOVENSKI STANDARD

oSIST prEN 1730:2011

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Pohištvo - Mize - Preskusne metode za ugotavljanje stabilnosti, trdnosti in trajnosti

Furniture - Tables - Test methods for the determination of stability, strength and durability

Möbel - Tische - Prüfverfahren zur Bestimmung der Standsicherheit, Festigkeit und Dauerhaltbarkeit

Mobilier domestique - Tables - Méthodes d'essai pour la détermination de la résistance, de la durabilité et de la stabilité

<https://standards.iteh.ai/catalog/standards/sist/b1122ac9-118a-45bd-84fa-9eb5a6058d19/sist-en-1730-2012>

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English Version

Furniture - Tables - Test methods for the determination of stability, strength and durability

Mobilier domestique - Tables - Méthodes d'essai pour la détermination de la résistance, de la durabilité et de la stabilité

Möbel - Tische - Prüfverfahren zur Bestimmung der Standsicherheit, Festigkeit und Dauerhaltbarkeit

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Foreword

This document (prEN 1730:2010) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1730:2000.

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prEN 1730:2010 (E)**1 Scope**

This European Standard specifies test methods for the stability, strength and durability of the structure of all types of table and desk without regard to use, materials, design/construction or manufacturing process.

This European Standard does not apply to changing units which are covered by other European Standards.

Test methods for the assessment of ageing, degradation and ergonomics are not included.

This European Standard does not apply to the strength and durability of any storage features, which are covered by other European Standards.

This European Standard does not apply to electrical safety.

Not all tests are necessarily applicable to all types of table.

This European Standard does not include any requirements. Requirements for different end uses can be found in other Standards.

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 14072:2003, *Glass in furniture — Test methods*

ISO 7619-2:2004, *Rubber, vulcanized or thermoplastic — Determination of indentation hardness — Part 2: IRHD pocket meter method*

3 Terms and definitions

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

- 3.1**
static tests
tests consisting of heavy loads being applied a few times to ensure that the furniture has sufficient strength under the highest levels of loading that might reasonably be expected to occur
- 3.2**
impact tests
tests to assess the strength and stability of the article under shock loading that might reasonably be expected to occur
- 3.3**
durability tests
tests simulating the repeated application of loads or movement of components occurring during long-term functional use
- 3.4**
structure
load bearing parts of furniture such as the frame, top and legs

3.5**stability**

ability to withstand forces that tend to cause the article to overturn

3.6**ancillary surface**

surface additional to the main surface intended for occasional use as part of the table top

NOTE A table extension added in the centre of the table shall be considered as the main surface. A part of the main surface in the unextended configuration may become an ancillary surface in the extended configuration. Tables where the extended configuration has a surface area greater than 50 % of the unextended configuration, then the extended configuration shall be considered the main surface.

3.7**duty cycle**

length of time the height adjustable table's drive system may be operated without impairing its useful life

NOTE The duty cycle includes the amount of time the drive system may be operated and the amount of time it must not be operated to allow the drive system to cool sufficiently before it is activated again.

4 General test conditions**4.1 Preliminary preparation**

The furniture shall be tested as delivered. Knock-down furniture shall be assembled according to the instructions supplied with it. If the instructions allow the furniture to be assembled or combined in different ways, the most adverse combination shall be used for each test. Knock-down fittings shall be tightened before testing. Further tightening shall not take place unless specifically required by the manufacturer.

For furniture where the structure includes hygroscopic materials, at least one week in normal indoor conditions shall have elapsed between assembly and testing.

For furniture where the structure includes plastics materials, at least 48 hours in normal indoor conditions shall have elapsed between assembly and testing.

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

The test for deflection of table tops (see 6.7), except those made from metal, glass and stone, shall be carried out at a relative humidity of (50 ± 5)% and a temperature of (23 ± 2)° C.

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

Unless otherwise stated static loads shall be maintained for 10 ± 2 seconds. Unless otherwise stated durability loads shall be maintained for 2 ± 1 seconds.

The forces may be replaced by masses. The relationship 10 N = 1 kg shall be used.

4.3 Tolerances

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

— Forces: ± 5 % of the nominal force;

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- Velocities: $\pm 5\%$ of the nominal velocity;
- Masses: $\pm 1\%$ of the nominal mass;
- Dimensions: ± 1 mm of the nominal dimension;
- Angles: $\pm 2^\circ$ of the nominal angle.

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

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

5 Test equipment and apparatus**5.1 General**

Unless otherwise stated, the tests may be applied by any suitable device because the results are not dependent upon the apparatus, except in the case of impact tests where the apparatus described in 5.2 shall be used.

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.

With the exception of the horizontal static, durability and stiffness tests, described in 6.2 & 6.4, 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.

Loading pads for the horizontal static, durability and stiffness tests, described in 6.2 & 6.4, shall not pivot.

With the exception of the horizontal static, durability and stiffness tests described in 6.2 & 6.4, if a loading pad tends to slide use a slip resistant material between the loading pad and the surface being tested.

5.2 Vertical impactor**5.2.1 General**

The vertical impactor is shown in Figure 1. The impactor comprises:

5.2.2 Circular body

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. The body and associated parts minus the springs shall have a mass of (17 ± 0.1) kg and the whole apparatus, including mass, springs and striking surface, shall have a mass of (25 ± 0.1) kg.

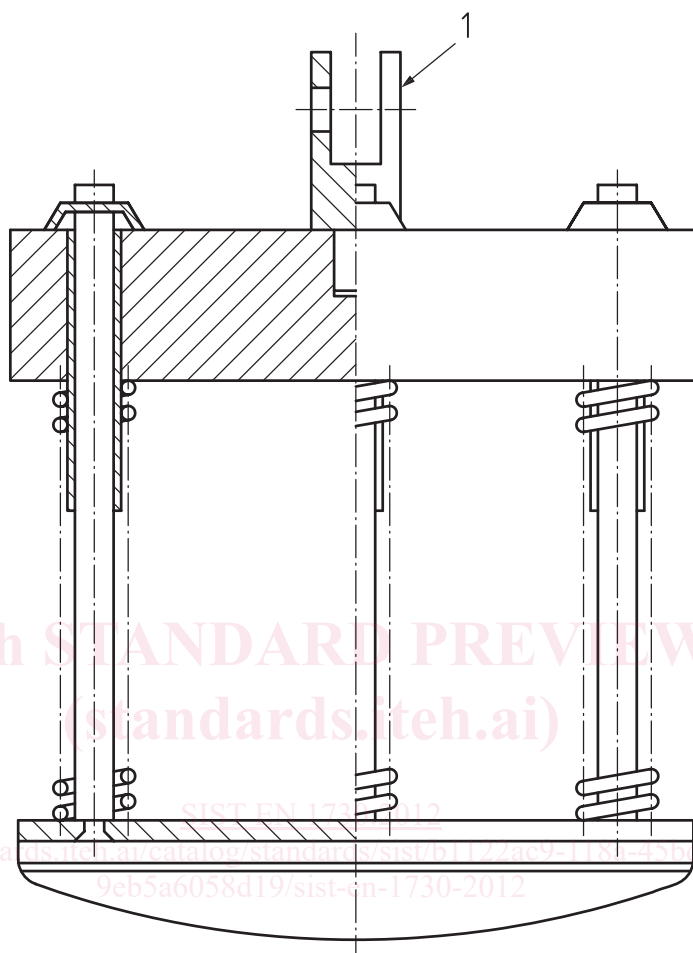
5.2.3 Springs

Which 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 (1040 ± 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 be not less than 60 mm.

5.2.4 Striking surface

Shall be 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.



Key

- 1 Joint of lifting device not inhibiting free fall

Figure 1 — Vertical impactor

5.3 Floor

Horizontal, flat and rigid with a smooth surface.

For the drop test (6.9) the floor shall be faced with a 2 mm thick layer of rubber with a hardness of 85 ± 10 IRHD according to ISO 7619-2: 2004.

5.4 Stops

To prevent the article from sliding but not tilting, no higher than 12 mm except in cases where the design of the item necessitates the use of higher stops, in which case the lowest that will prevent the item from moving shall be used.

prEN 1730:2010 (E)**5.5 Loading pad**

Rigid cylindrical object, 100 mm in diameter, with a flat, smooth face and a 12 mm edge radius.

5.6 Foam

25 mm thick layer of flexible foam with a bulk density of $(120 \pm 25) \text{ kg/m}^3$.

5.7 Steel test tube

A steel tube, 18 mm in diameter and 1,5 mm in wall thickness with a length such that a force can be applied at a distance of 2200 mm above the floor.

5.8 Obstacles for castor durability tests

Steel strips 50 mm wide and 2 mm high with the edges having a radius of 2 mm, 500 mm apart and parallel on the floor surface and perpendicular to the test direction.

6 Test procedures – Strength and durability**6.1 General**

The tests shall be carried out in the configuration most likely to cause failure. Levelling devices, where fitted, shall be opened 10 mm.

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 a product, the test shall be carried out as far as possible as specified.

Tables supplied with storage features shall be tested with the specified load in the storage item.

6.2 Horizontal static load test

Position the table on the test surface, in its normal position of use.

Height adjustable tables shall be set to their highest position.

Restrain the base of the table by stops placed in all directions at the opposite end to that at which the horizontal test force is first to be applied. Leave the stops in position for all applications of the horizontal test force.

Apply the specified mass of to the approximate centre of the table top (area of loading).

Apply the specified horizontal force by means of the loading pad (5.5) at the table top level in a direction perpendicular to a line joining the two legs/supports, midway between the legs/supports. See Figures 2a, 2c, 2e and 2g.

If the table top is not secured to the understructure record the load that causes the top to move. Prevent the top from moving, by a suitable method that shall not reinforce the understructure and carry out the test.

If the table tends to overturn when the specified force is applied, reduce the force sufficiently to just prevent overturning. Record the force applied. The specified force shall not be reduced below the minimum specified force. If the article tends to overturn at this force, the specified mass applied to the table top shall be increased gradually until this tendency ceases.

Apply the specified force in the opposite direction.

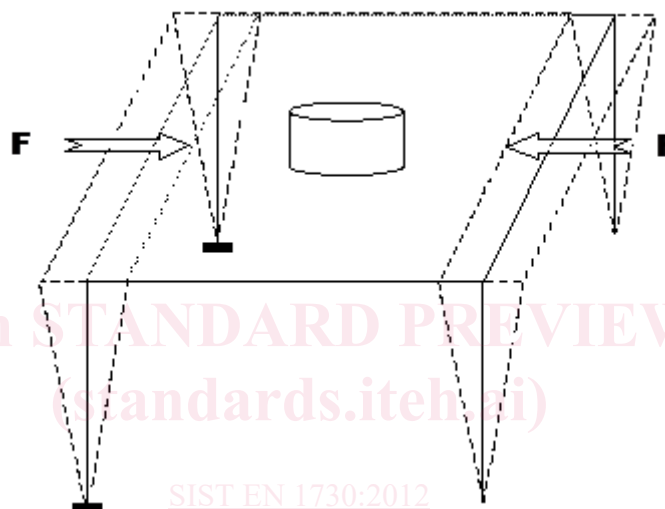
One application of the force in each direction represents one cycle.

Apply the specified horizontal force at the work top level along the line joining the two legs/supports. See Figures 2b, 2d, 2f and 2h.

Apply the specified force in the opposite direction.

One application of the force in each direction represents one cycle.

Repeat this procedure with the force applications until each unique leg design/construction has been tested in each of 4 quadrants.



a) Strength under horizontal static force test – Rectangular table – First and second directions