

SLOVENSKI STANDARD
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Shranjevalno pohištvo, ki ni za domačo uporabo - Preskusne metode za ugotavljanje trdnosti, trajnosti in stabilnosti

Non-domestic storage furniture - Test methods for the determination of strength, durability and stability

Behältnismöbel für den Nicht-Wohnbereich - Prüfverfahren zur Bestimmung der Sicherheit, Festigkeit und Dauerhaltbarkeit

Meubles de rangement à usage non domestique - Méthode d'essai pour la détermination de la résistance, la durabilité et la stabilité

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**Non-domestic storage furniture - Test methods for the
determination of strength, durability and stability**

Meubles de rangement à usage non domestique - Méthode
d'essai pour la détermination de la résistance, la durabilité
et la stabilité

Behältnismöbel für den Nicht-Wohnbereich - Prüfverfahren
zur Bestimmung der Sicherheit, Festigkeit und
Dauerhaltbarkeit

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Foreword

This document (prEN 16122:2010) 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.

1 Scope

This European Standard specifies tests methods for the determination of strength, durability and stability for all types of non-domestic storage furniture.

It does not apply to office, industrial, kitchen, catering equipment and retail storage, and industrial storage lockers.

Strength and durability tests do not assess the structure of the building for example the strength of wall hanging cabinets includes only the cabinets and the parts used for attachment. The wall and the wall attachments are not included.

Assessment of the effects of ageing, degradation and flammability is not included.

Annex A (normative) contains details of test equipment for the slam open/shut testing of extension elements.

Annex B (normative) contains test methods for trays.

Annex C (normative) contains test methods for coat hooks.

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.

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

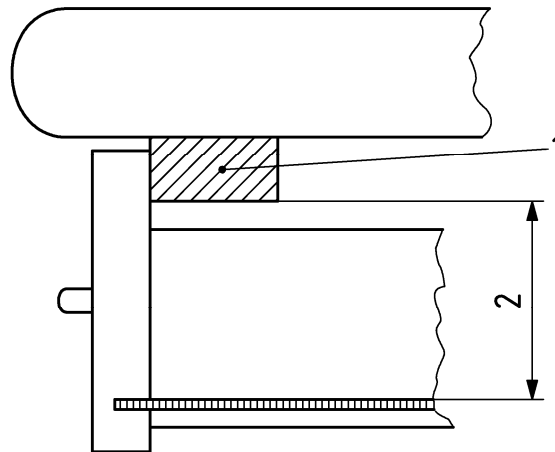
catch device

device, which keeps or pulls a component in place, but does not require a second action in order to release it, e.g. a magnetic catch or a self-closing-mechanism

3.2

clear height

unobstructed height above the top of the bottom surface, e.g. the top of the extension element bottom and the lower edge of the extension element above, or the structure of the unit (see Figure 1)



Key

- 1 Structure of the unit
- 2 Clear height H

Figure 1 — Clear height

3.3

damper mechanism

mechanism which closes the element gently

3.4

extension element

components that can be pulled out and pushed in, e.g. drawers, suspended pocket files, keyboard trays

3.5

flap

horizontally hinged door, which opens upwards or downwards

3.6

free standing unit

unit not intended to be attached to a load bearing structure

3.7

interlock

device which restrains the opening of more than one extension element at a time

3.8

latching mechanism

mechanism which retains an extension element or a door in the closed position. It requires a second action to release it and may require a key or a combination in order to activate it

3.9

locking mechanism

mechanism that limits access to the interior of a unit or a storage element. It requires a key or a combination in order to activate it or to make it possible to activate it

3.10

stay

hardware component usually used to hold a flap or door in the open position

prEN 16122:2010 (E)**3.11****top hanging unit**

unit intended to be entirely supported by the ceiling

3.12**wall-, panel- and screen-hanging unit**

unit intended to be supported by a wall, panel or screen

3.13**tray**

storage element that is designed, under normal use, to be removed from the storage unit and used independently

4 General test conditions**4.1 Preliminary preparation**

The unit(s)/component(s) shall be tested as delivered. The unit(s)/component(s) shall be assembled and/or configured according to the instructions supplied with it. The most adverse configuration shall be used for each test. For testing a range of related 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 be tightened before testing and shall not be re-tightened unless specifically required in the manufacturer's instructions. If the configuration must be changed to produce the worst-case conditions, this shall be recorded in the test report.

Combination of tests may be necessary to cover the properties of multifunction components; e.g. a receding door shall be tested as a sliding door and as a pivoted door.

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

For furniture that includes plastics materials, at least 48 hours in normal indoor conditions shall have elapsed prior to testing.

Except for the deflection of shelves (see below), the tests shall be carried out in indoor ambient conditions at a temperature between 15 °C and 25 °C. 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.

The test for deflection of shelves (6.1.3), except metal, stone and glass shelves, shall be carried out at a relative humidity of 45 % to 55 %. If during a test the relative humidity is outside this range, the maximum and/or minimum shall be recorded in the test report.

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.

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.

During testing, the unit shall be placed on the floor and levelled, unless otherwise specified.

All tests specified for a particular component shall be carried out on the same sample.

4.2 Application of forces

The test forces in the static load tests shall be applied sufficiently slowly to ensure that negligible dynamic force is applied. Unless otherwise specified, each specified force shall be maintained for not less than 10 seconds and not more than 15 seconds.

The test forces in durability tests shall be applied at a rate to ensure that excessive heating does not occur. Unless otherwise specified, each test force shall be maintained for (2 ± 1) seconds.

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

4.3 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: $\pm 1 \text{ mm}$ 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 $\pm 5 \text{ mm}$.

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

4.4 Prevention of movement during test

If a freestanding unit tends to overbalance during the tests specified in clause 6 and 7, load the unit until this tendency stops, unless otherwise specified.

If a freestanding unit tends to slide during the tests specified in clause 6 and 7, with the exception of clause 6.4.2 and 6.4.3, the unit shall be restrained by stops (5.4).

4.5 Loading

Unless otherwise specified, all storage components, which are not subject to testing, shall be uniformly loaded according to the loads specified in the requirements document.

5 Test equipment and apparatus

5.1 General

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 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, so that the loads are always applied at the specified points and in the specified directions.

prEN 16122:2010 (E)**5.2 Floor surface**

A rigid, horizontal and flat surface.

For the strength of structure and underframe (6.4.1), the surface shall be smooth high-pressure plastics laminate.

For the drop test (6.4.2), the floor shall be faced with a 3 mm thick layer of rubber with a hardness of (85 ± 10) IRHD according to ISO 7619-2: 2004.

For stability tests (9): a rigid and flat surface with a slope of $(10 \pm 0,5)$ mm/m.

5.3 Wall surface

A rigid, vertical and flat surface.

5.4 Stops

Devices to prevent the article from sliding but not tilting, not higher than 12 mm except in cases where the design of the unit necessitates the use of higher stops, in which case the lowest stop that will prevent the item from moving shall be used.

5.5 Loading pad

Rigid disc 100 mm in diameter (or 50 mm to be used in limited space), with a flat face and a 12 mm front edge blend radius.

5.6 Apparatus for slam shut/open of extension elements

Two examples for suitable apparatus as well as calibration instructions are given in Annex A.

5.7 Masses

Masses shall be designed so that they do not reinforce the structure or re-distribute the stresses.

5.8 Glass marbles

Marbles shall be of solid glass with 10 mm to 15 mm diameter. They shall be in a flexible bag large enough to allow them to move in the bag during the test.

5.9 Loads for filing pockets

Suspended filing pockets shall be loaded with typing paper or an equivalent alternative as shown in Figure 19.

5.10 Steel impact plates

Steel plates, 200 mm in length, with one surface faced with a 3 mm thick layer of rubber with a hardness of (85 ± 10) IRHD according to ISO 7619-2:2004. Other properties as defined in Table 1.

Table 1 — Steel impact plates

Plate parameter	Unit	Plate no. 1	Plate no. 2
Mass (excluding rubber)	kg	1,7	2,5
Approximate width	mm	109	160
Approximate thickness	mm	10	10
Length	mm	200	200

5.11 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.

5.12 Obstacles for castor stability tests

Steel strips 50 mm wide and 12 mm high with the edges having a radius of 2 mm.

6 Test procedures for non-movable parts

6.1 Shelves, general

When shelves are structurally interconnected (other than at their ends) all the shelves shall be equally loaded.

For units with an indeterminate number of shelves, unless otherwise specified, divide the internal height of the unit, in millimetres, by 200 and take the nearest integer. This number, minus 1, shall then be the number of shelves to be fitted.

6.1.1 Shelf retention test – horizontal outward force

Apply the horizontal, outwards force specified to the middle of the front edge of the shelf.

6.1.2 Shelf retention test – vertical downward force

Apply the vertical downwards force specified to a point 25 mm in from the front edge of the shelf at the position most likely to cause failure.

6.1.3 Deflection of shelves

Testing of the deflection of shelves, which are not made of metal, glass or stone, shall be carried out in a controlled humidity atmosphere (see 4.1).

Place the shelf on its supports in the unit.

The deflection of the shelf shall be measured at a point 10 mm from the front edge where the deflection is greatest.

The deflection shall be measured to an accuracy of $\pm 0,1$ mm with reference to a straight line parallel to the front edge drawn between two adjacent supports.

Load the shelf uniformly (see figure 2) with the load specified and apply for:

— one hour for shelves made of metal, glass and stone; review on enquiry