



SLOVENSKI STANDARD
SIST EN 15338:2007

01-september-2007

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Hardware for furniture - Strength and durability of extension elements and their components

Möbelbeschläge - Festigkeit und Dauerhaltbarkeit von Auszügen und deren Komponenten

Quincaillerie d'ameublement - Résistance mécanique et endurance des éléments extractibles et de leurs composants

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ICS 97.140

English Version

Hardware for furniture - Strength and durability of extension elements and their components

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

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Foreword

This document (EN 15338:2007) 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of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

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 United Kingdom.

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Introduction

The aim of this European Standard is to provide furniture manufacturers, designers and developers with comparable information regarding the performance of extension elements and drawers.

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1 Scope

This European Standard specifies test methods and requirements for the strength and durability of all types of extension elements and their components for all fields of application, except table extensions.

The tests consist of the application of loads, forces and velocities simulating normal functional use, as well as misuse, that might reasonably be expected to occur.

With the exception of the corrosion test in 6.4, the tests are designed to evaluate properties without regard to materials, design/construction or manufacturing processes.

The strength and durability tests only relate to the extension elements and the parts used for the attachment, e.g. screws.

The strength and durability tests are carried out in a test frame with specified properties. The test results can only be used as a guide to the performance of a piece of furniture.

The test results are only valid for the extension element tested. These results may be used to represent the performance of production models provided that the tested model is representative of the production model.

Ageing and influences of heat and humidity are not included.

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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 320, *Fibreboards - Determination of resistance to axial withdrawal of screws*

EN 323, *Wood-based panels - Determination of density*

EN ISO 6270-2, *Paints and varnishes — Determination of resistance to humidity — Part 2: Procedure for exposing test specimens in condensation-water atmospheres (ISO 6270-2:2005)*

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 an extension element in place, but does not require a second action in order to release it, e.g. a magnetic catch or a self-closing or self-opening mechanism

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

3.3 loading capacity, M
mass in Kg, as specified by the manufacturer, for which the extension element will fulfil the strength and durability requirements.

NOTE The loading capacity includes the extension element and the load in/on the extension element. In other EN standards, this is referred to as total mass.

3.4

damper

mechanism which gently brings the extension element to a stop

4 General test conditions

4.1 Preliminary preparation

The extension element shall be assembled/mounted according to the instructions supplied with it.

If mounting or assembly instructions are not supplied, the most adverse configuration shall be used and 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.

For testing a range of related extension elements, only worst case(s) need to be tested.

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.

Extension elements which include structural hardware parts made of hygroscopic plastic materials, e.g. polyamide shall be conditioned at (23 ± 5) °C and a relative humidity of (50 ± 5) % for at least 7 days before testing.

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 extension element thoroughly. Record any defects so that they are not assumed to have been caused by the tests. Carry out measurements when specified.

4.2 Test equipment

Unless otherwise specified, the tests may be applied by any suitable device, because results are not dependent upon the apparatus.

The equipment shall not inhibit deformation of the extension element, i. e. it shall be able to move so that it can follow the deformation of the extension element 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.

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. Unless otherwise specified, each force shall be maintained for not less than 10 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.

The forces may be replaced by masses. The relation $10 \text{ N} = 1 \text{ kg}$ may be used for this purpose.

4.4 Tolerances

Unless otherwise stated, the following tolerances are applicable:

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;

Angles: $\pm 2^\circ$ of the nominal angle;

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

4.5 Sequence of testing

The tests shall be carried out in the same sequence as the clauses are numbered in this standard. If the clause sequence is not followed, the sequence shall be recorded in the test report.

4.6 Inspection and assessment of results

Before and after completion of each test, carry out the inspection as specified, after using adjustment devices, if available.

Before any measurements are taken, the loaded extension shall be moved 10 times over the total extension length.

Record any changes that have taken place since the initial inspection. The inspection shall include at least the following:

- a) the fracture of any component or joint;
- b) the loosening of any joint intended to be rigid, which can be demonstrated by hand pressure;
- c) the deformation or wear of any part or component such that its functioning is impaired;
- d) the loosening of any means of fixing components;
- e) any impaired function of a component or part.

5 Test apparatus

5.1 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.

5.2 Apparatus for slam-shut/open tests

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

5.3 Masses

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

5.4 Glass marbles

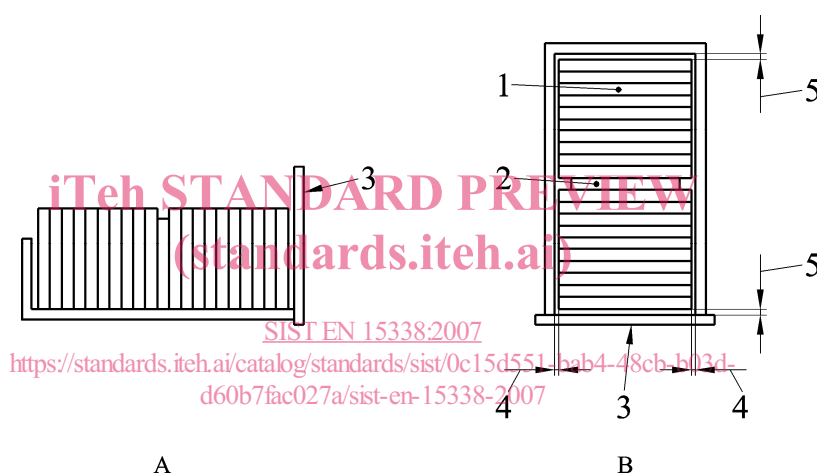
Marbles made of solid glass with 10 mm to 15 mm diameter. They shall be in a flexible bag large enough to allow them to move in the bag during the test.

In cases where the volume of the glass marbles is greater than the volume of the extension element, steel marbles shall be used. This shall be noted in the test report.

5.5 Loads for filing pockets

Suspended filing pockets shall be loaded with typing paper or an equivalent alternative as shown in Figure 1.

In cases where it is not possible to achieve the loading capacity with paper, the additional mass shall be steel and shall be positioned as the spacing material. This shall be noted in the test report.



Key

- 1 Typing paper
- 2 Spacing material (for example polystyrene) in the middle of the extension element
- 3 Front of extension element
- 4 Air gap
(NOTE Will be determined by the size of the paper)
- 5 Air gap 25mm ± 6 mm
- A Side view
- B Top view

Figure 1 — Loading of suspended filing pockets with typing paper

5.6 Test frame and test drawer

The tests specified in 6.2 and 6.3 shall be carried out in a test frame (Figure 2, which is so constructed that the deformation under the applied load is no more than 1 mm).

Unless otherwise specified by the manufacturer, the extensions shall be mounted on particle board sides, see 5.7.

The distance between the outer surfaces of the particle board shall be specified by the manufacturer. If it is not specified, the distance (Figure 2, key 11) shall be (590 ± 10) mm.