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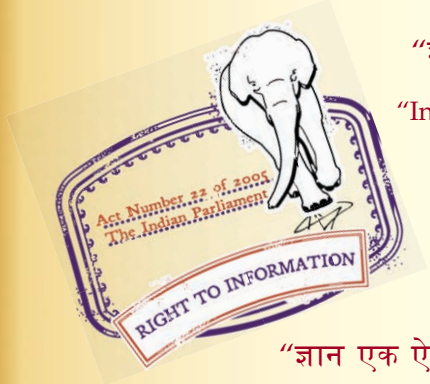
IS 13089 (1991): Furniture - Storage units - Determination of stability [CED 35: Furniture]



"ज्ञान से एक नये भारत का निर्माण"
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"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS 13089 : 1991
ISO 7171 : 1988
(Reaffirmed 2005)

Indian Standard

FURNITURE — STORAGE UNITS — DETERMINATION OF STABILITY

UDC 684·45 : 620·179·7

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 1991

Price Group 3

Indian Standard

FURNITURE — STORAGE UNITS — DETERMINATION OF STABILITY

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 7171 : 1988 'Furniture — Storage units — Determination of stability, issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Furniture Sectional Committee (CED 35) and approval of the Civil Engineering Division Council.

The text of the ISO standard has been approved as suitable for publication as Indian Standard without deviation. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standard the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the edition indicated:

International Standard	*Indian Standard*	*Degree of Equivalence*
ISO 7173	IS 5416 (Part 1 and Part 2) : 1988 Method of test for strength and stability of chairs and stools: Part 1 Strength, and Part 2 Stability	Identical
ISO 8019	IS 5967 (Part 1 and Part 2) : 1988 Methods of test for strength and stability of tables and trolleys: Part 1 Determination of strength (*first revision*), and Part 2 Determination of stability (*first revision*)	Identical

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0 Introduction

This International Standard is one of a series being prepared on the strength, durability and stability of furniture. The series currently consists of the following:

ISO 7170, *Furniture — Storage units — Determination of strength and durability.*

ISO 7171, *Furniture — Storage units — Determination of stability.*

ISO 7172, *Furniture — Tables — Determination of stability.*

ISO 7173, *Furniture — Chairs and stools — Determination of strength and durability.*

ISO 7174-1, *Furniture — Chairs — Determination of stability — Part 1: Upright chairs and stools.*

ISO 7174-2, *Furniture — Chairs — Determination of stability — Part 2: Chairs with tilting or reclining mechanism.*

ISO 8019, *Furniture — Tables — Determination of strength and durability.*

1 Scope and field of application

This International Standard describes methods for determining the stability of free-standing storage furniture, including cupboards, cabinets and bookshelves, that are fully assembled and ready for use.

The tests are not applicable to wall-mounted or otherwise built-in units.

The test results are only valid for the article tested. When the test results are intended to be applied to other similar articles, the test specimen should be representative of the production model.

In the case of designs not covered by the test procedures, the test should be carried out as far as possible as described, and a list made of the deviations from the test procedure.

2 Definition

stability: Ability to withstand forces that tend to cause the article to overturn.

3 Test equipment and conditions

3.1 Vertical force application device, which can apply a vertical force, either at a given value or a gradually increasing value. The device shall not hinder movement of the article being tested. If a given value is wanted, the device may consist of a mass, e.g. a steel plate.

3.2 Horizontal force application device, for example spring gauge, which can apply a gradually increasing horizontal force to a shelf.

3.3 Stops, to prevent the article from sliding but not overturning, 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 sliding shall be used.

3.4 Floor surface, horizontal, flat.

3.5 Tolerances, unless otherwise stated, are as follows:

Forces ± 5 %

Masses ± 0,5 %

Dimensions ± 0,5 mm

3.6 Preliminary preparation shall be to tighten any assembly fittings before testing.

4 Stability of unloaded unit

Position the storage unit on the floor with stops against the front legs or plinth.

Open all doors to 90° and extend all drawers and extension leaves to two-thirds of their sliding length. Open flaps to their horizontal position or as near horizontal as possible.

With all components as above, register any tilting tendencies.

5 Stability with loads on movable parts (vertical force) (see figures 1, 2 and 3)

Position the storage units on the floor with stops against the front legs or plinth.

Shelves, etc. shall be unloaded.

One part after another shall be opened/extended as in clause 4, tested as follows and then closed. Parts not undergoing test shall be closed. In the case of double doors, first one door shall be opened to 90° and tested, and then, with the first door still in the open position, the second door shall be opened to 90° and tested.

Apply a vertical force on the part undergoing test and increase the force until at least one of the opposite legs or part of the plinth just lifts away from the floor.

Apply the force with its centre positioned

- on doors: 50 mm from the outer edge (see figure 1);
- on drawers: over the centre of the front of the drawer (see figure 2);
- on flaps, leaves and shelves: over the centre and 50 mm from outer edge (see figure 3).

Record the force, in newtons, to the nearest whole number.

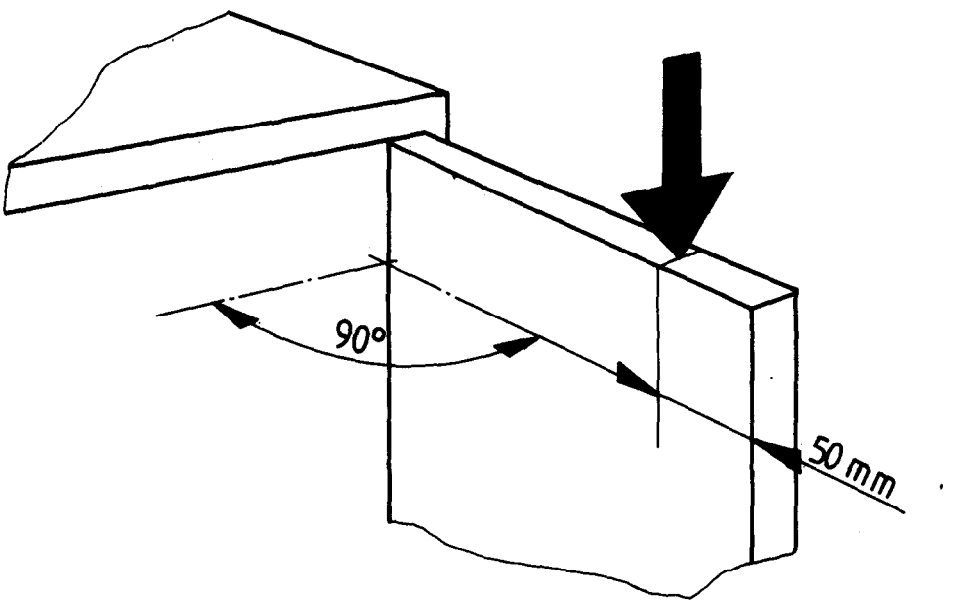

Figure 1 — Application of vertical force on the door

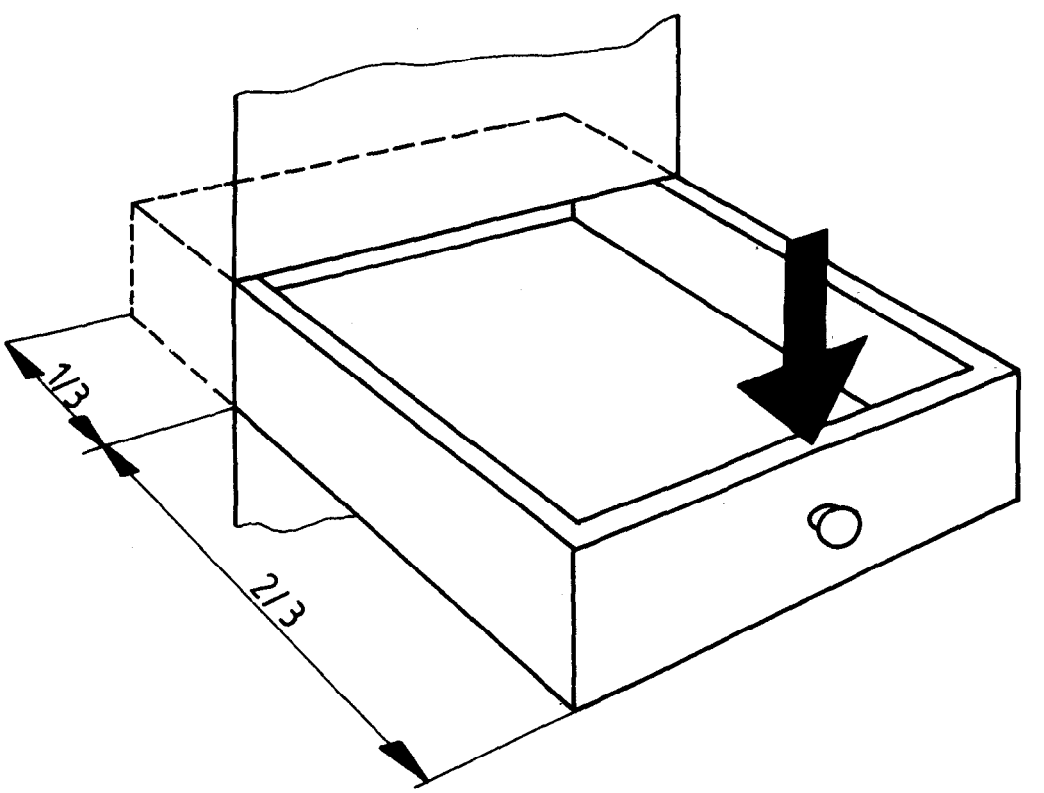

Figure 2 — Application of vertical force on the drawer

6 Stability with loads on open shelf (vertical and horizontal forces) (see figure 3)

Position the storage units on the floor with stops against the front legs or plinth.

With all doors, drawers, etc. closed, apply a vertical force of 50 N to an accessible shelf, 50 mm from its front edge. The shelf shall be the one where the lowest stability value is expected. The other shelves, etc. shall be unloaded.

Apply a horizontal force outwards from the shelf and increase the force until at least one of the opposite legs or part of the plinth just lifts away from the floor.

Record the force, in newtons, to the nearest whole number.

7 Test report

The test report shall include at least the following information :

a) a reference to this International Standard;

b) the piece of furniture tested (relevant data);

c) stability of the unloaded unit (tilting/not tilting);

d) stability with loads on movable parts, in newtons, from clause 5;

e) stability with loads on open shelves expressed as in d), and which of the shelves were tested;

f) details of any deviations from this International Standard;

g) the name and address of the test facility;

h) the date of test.

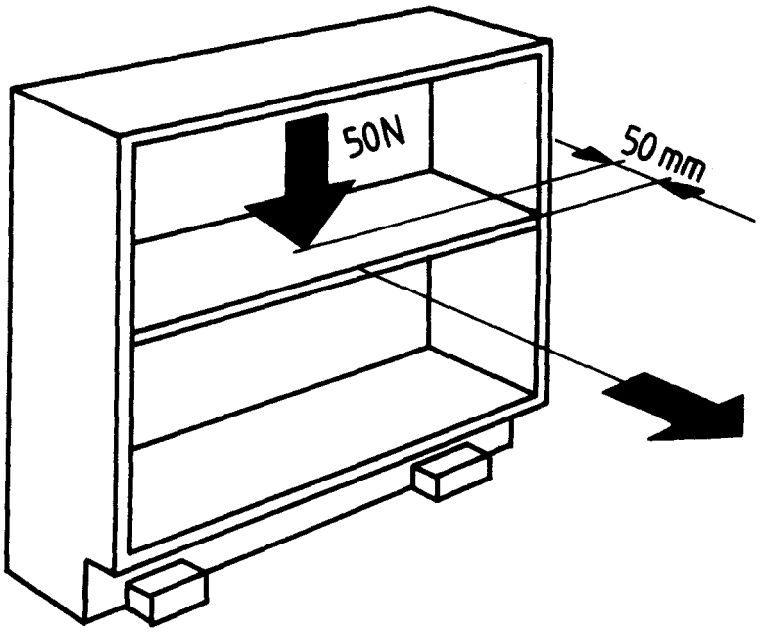

Figure 3 — Application of vertical and horizontal forces on the shelf

Bureau of Indian Standards

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Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent in BIS giving the following reference :

Doc : No. CED 35 (4840)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Printed at the Central Electric Press. Delhi, India