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EUROPEAN STANDARD

EN 527-3

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Office furniture - Work tables and desks - Part 3: Methods of test for the determination of the stability and the mechanical strength of the structure

Mobilier de bureau - Tables de travail de bureau - Partie 3: Méthodes d'essai pour la détermination de la stabilité et de la résistance mécanique de la structure

Büromöbel - Büro-Arbeitstische - Teil 3: Prüfverfahren für die Bestimmung der Standsicherheit und der mechanischen Festigkeit der Konstruktion

This European Standard was approved by CEN on 18 January 2001.

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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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Foreword.....	3
1 Scope	4
2 Normative references	4
3 General test conditions	4
3.1 Preliminary preparation.....	4
3.2 Determination of the drawer test load	4
3.3 Tolerances	5
4 Test apparatus.....	5
4.1 Floor surface	5
4.2 Stops	5
4.3 Loading pad for the application of vertical forces	5
4.4 Horizontal force application device	5
4.5 Masses	5
5 Test methods.....	5
5.1 Stability	5
5.1.1 Purpose of the test	5
5.1.2 Test procedure	6
5.2 Strength under vertical force.....	6
5.2.1 Purpose of the test	6
5.2.2 Test procedure	6
5.3 Strength under horizontal force	7
5.3.1 Purpose of the test	7
5.3.2 Test procedure	7
5.4 Fatigue under horizontal force	8
5.4.1 Purpose of the test	8
5.4.2 Test procedure	8
5.5 Fatigue under vertical force.....	9
5.5.1 Purpose of the test	9
5.5.2 Test procedure	9
5.6 Drop test	10
5.6.1 Purpose of the test	10
5.6.2 Test procedure	10
6 Test report	11
Annex A (informative) Stiffness of the structure.....	12
A.1 Purpose of the test	12
A.2 Test procedure	12

Foreword

This document (EN 527-3:2003) 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 2003, and conflicting national standards shall be withdrawn at the latest by August 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 527-3:2003 (E)**1 Scope**

This part of EN 527 specifies methods of test for the determination of the stability and the mechanical strength of the structure of office work tables and desks.

NOTE In this standard, the words « table » and « desk » have the same meaning. For simplicity, only the word « table » is used in the remainder of the standard.

The tests are designed to be applied to an article of furniture that is fully assembled and ready for use.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 48:1994, Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD).

iTeh STANDARD PREVIEW**3 General test conditions (standards.iteh.ai)****3.1 Preliminary preparation**

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Before any of the tests are commenced, the item shall be old enough to ensure that it has developed its full strength.

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

The tests shall be carried out in indoor ambient conditions at a temperature between 15°C and 25°C.

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 fatigue tests shall be applied sufficiently slowly to ensure that kinetic heating does not occur.

The forces can be replaced by masses.

3.2 Determination of the drawer test load

The test load of drawers, M, is defined by the following formula :

$$M(kg) = \frac{l}{330} \times \frac{L}{50} \times \frac{h}{300} \times 2,5 .$$

where :

l (in mm) is the internal width : usable distance between the sides of the drawer.

L (in mm) is the internal length : usable distance between the front and back of the drawer.

h (in mm) is the clear height : unobstructed height above the bottom of the drawer.

3.3 Tolerances

Unless otherwise stated :

- all forces shall have an accuracy of $\pm 5\%$ of the nominal force ;
- all dimensions an accuracy of ± 1 mm of the nominal dimension ;
- all masses an accuracy of $\pm 0,5\%$ of the nominal mass.

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

4 Test apparatus

Unless otherwise stated, the tests may be applied by any suitable device because results are dependent only upon correctly applied forces and loads and not upon the apparatus.

4.1 Floor surface

Horizontal, flat and rigid with a smooth surface. For the drop test (5.6), a rubber mat ($2 \pm 0,5$) mm thick, with hardness of 85 IRHD ± 10 IRHD according to ISO 48 on top of a concrete floor.

4.2 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.

4.3 Loading pad for the application of vertical forces

A rigid object with a flat surface, 100 mm in diameter, with a 12 mm front edge radius.

4.4 Horizontal force application device

A device, capable of applying a gradually increasing horizontal force. The device shall be capable of applying the force at the required angle of inclination of the horizontal and shall not hinder the free movement of the article.

4.5 Masses

Masses designed so that they do not reinforce the structure or redistribute the load.

5 Test methods

5.1 Stability

5.1.1 Purpose of the test

To check the ability of tables to resist forces which can cause overturning under the following conditions :

- Stability under vertical load : to demonstrate adequate resistance to being overturned by people using the table.
- Stability with drawers open : to demonstrate adequate resistance to overturning with drawers fully loaded and fully open.

EN 527-3:2003 (E)**5.1.2 Test procedure**

Place the table on the floor surface (4.1), in normal position of use. There shall be no additional loads on the top or in the drawers except where otherwise stated (see 5.1.2.2).

All extra components, e.g. pull-out trays and flaps shall be placed in the position most likely to cause overturning but they shall not be taken into account when determining the loading positions.

Height adjustable tables shall be set to their highest position, but not more than 800 mm from the floor to the top surface.

Levelling devices shall be set in the closed position.

5.1.2.1 Stability under vertical load

Apply, by means of the loading pad (4.3), a vertical load of 750 N at any position 50 mm from the edge of the table top likely to cause overturning.

In the case of a sliding work surface, carry out the test in the most adverse position in which the work surface can be locked and used.

Record whether the table overturns.

5.1.2.2 Stability with drawers open

When the table is equipped with drawers or file suspension frames, load each drawer with the test load M specified in 3.2.

Open the drawers in accordance with the following instructions :

- a) Furniture with drawers without interlocks : **Open all drawers in the least favourable combination.**
- b) Furniture with drawers with interlocks : Open, in the least favourable combination, the largest drawer of each pedestal, or that which is most likely to overturn the table.

The drawers shall be opened as far as the open stop will allow and a vertical load of 200 N shall be applied to the centre of the front of the table, 50 mm from the edge.

Record whether the table overturns.

5.2 Strength under vertical force**5.2.1 Purpose of the test**

To check the strength of the worktop and of the structure of the table, under occasional vertical loads of short duration.

5.2.2 Test procedure

Place the table on the floor surface (4.1), in normal position of use.

Levelling devices shall be opened 10 mm.

Load all drawers with the test load M specified in 3.2. Close the drawers and keep the drawers closed throughout the test.

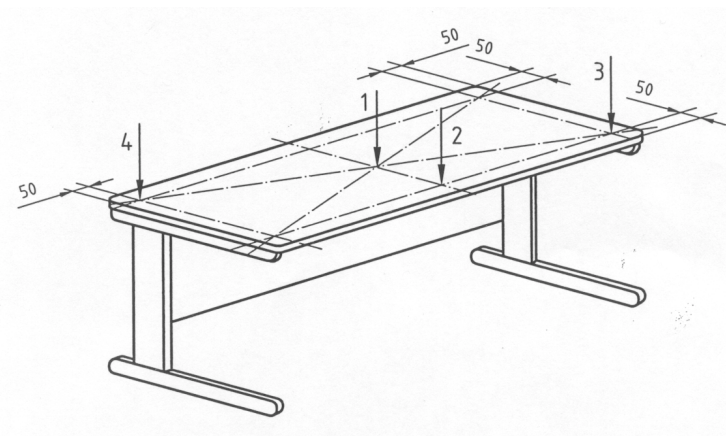
Apply to the work surface, by means of the loading pad (4.3), a downwards vertical force of 1000 N, 10 times. The force application shall be maintained for $10 \text{ s} \pm 2 \text{ s}$.

Carry out the test at the four points shown in figure 1, or anywhere else on the work surface that is considered likely to cause failure.

The forces shall be applied 50 mm from the edges.

Record any defects.

Dimensions in millimetres



Legend

1, 2, 3 and 4 Force application points

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Figure 1 — Strength under vertical load

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5.3 Strength under horizontal force

5.3.1 Purpose of the test

To check the ability of office tables to withstand horizontal forces applied for example by a person pushing or pulling the table.

5.3.2 Test procedure

Place the table on the floor surface (4.1), in normal position of use.

Height adjustable tables shall be set to their highest position, but not more than 800 mm from the floor to the top surface.

Levelling devices shall be opened 10 mm.

Restrain the base/legs of the table by stops (4.2) placed on one short side.

Load all drawers with the test load M specified in 3.2. Close the drawers and keep the drawers closed throughout the test.

Apply a force of 450 N by means of the horizontal force application device (4.4) horizontally and alternately from the centre of the short sides.

One application from one short side and one from the other short side represent one cycle.

Carry out 10 cycles.

Each force application shall be maintained for at least 10 s.