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Pohištvo - Stoli in mize za vzgojno-izobraževalne ustanove - 2. del: Varnostne zahteve in preskusne metode

Furniture - Chairs and tables for educational institutions - Part 2: Safety requirements and test methods

Möbel - Stühle und Tische für Bildungseinrichtungen - Teil 2: Sicherheitstechnische Anforderungen und Prüfverfahren

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Meubles - Chaises et tables pour les établissements d'enseignement - Partie 2: Exigences de sécurité et méthodes d'essai

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English Version

Furniture - Chairs and tables for educational institutions - Part 2: Safety requirements and test methods

Meubles - Chaises et tables pour les établissements
d'enseignement - Partie 2: Exigences de sécurité et
méthodes d'essai

Möbel - Stühle und Tische für Bildungseinrichtungen - Teil
2: Sicherheitstechnische Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 12 June 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

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

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Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 General test conditions.....	4
3.1 Testing ranges of chairs and tables	4
3.2 Sequence of testing.....	4
4 Safety requirements	5
5 Testing of chairs	5
5.1 General.....	5
5.2 Stability	6
5.2.1 Forward stability	6
5.2.2 Sideways stability	7
5.2.3 Rearwards stability	8
5.3 Strength and durability	9
5.3.1 Seat and back static load (EN 1728:2000 clause 6.2.1).....	9
5.3.2 Seat and back durability (EN 1728:2000 clause 6.7)	10
5.3.3 Seat front edge durability (EN 1728:2000 clause 6.8)	11
5.3.4 Sideways static load (EN 1728:2000 clause 6.13).....	12
5.3.5 Forward static load (EN 1728:2000 clause 6.12).....	13
5.3.6 Seat impact (EN 1728:2000 clause 6.15).....	14
5.3.7 Back impact (EN 1728:2000 clause 6.16).....	15
5.3.8 Static load of foot rail (EN 1728:2000 clause 6.4)	16
5.3.9 Drop test (Annex A)	17
6 Testing of tables	17
6.1 Stability	17
6.1.1 Stability of tables, horizontal impact (EN 1728:2000 clause 6.16).....	17
6.1.2 Stability of tables, vertical load (EN 1730:2000 clause 6.7).....	18
6.2 Strength and durability of tables.....	18
6.2.1 Horizontal static load (EN 1730:2000 clause 6.2)	18
6.2.2 Horizontal durability (EN 1730:2000 clause 6.4).....	19
6.2.3 Vertical static load (EN 1730:2000 clause 6.3).....	20
6.2.4 Vertical durability (EN 1730:2000 clause 6.5).....	21
7 Test report	22
Annex A (normative) Drop test of chairs.....	23
A.1 Drop test	23
Annex B (informative) Test method for determination of the stability of chairs placed on table	
tops	24
B.1 General.....	24
B.2 Test equipment	24
B.3 Test method.....	24

Foreword

This European Standard (EN 1729-2:2006) 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 January 2007, and conflicting national standards shall be withdrawn at the latest by January 2007.

This document supersedes ENV 1729-2:2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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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1 Scope

This part of EN 1729 specifies safety requirements and test methods for chairs and tables for general educational purposes in educational institutions.

It does not apply to computer related and special purpose workstations, e.g. offices, laboratories, ranked seating, workshops, and spaces for design and technology.

Annex A (normative) includes a test method for the drop test of chairs.

With the exception of Annex A, the figures illustrate test principles only and cannot be used to carry out the tests.

NOTE Part 1 of this standard specifies functional dimensions and marking of chairs and tables for general educational purposes.

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 1022:2005, *Domestic furniture – Seating – Determination of stability*

EN 1728:2000, *Domestic furniture – Seating – Test methods for the determination of strength and durability*

EN 1729-1, *Furniture – Chairs and tables for educational institutions – Part 1: Functional dimensions*

EN 1730:2000, *Domestic furniture – Tables – Test methods for determination of strength, durability and stability*

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EN 13721, *Furniture – Assessment of the surface reflectance*

EN 13722, *Furniture – Assessment of the surface gloss*

3 General test conditions

3.1 Testing ranges of chairs and tables

If chairs in a range of size marks are all manufactured with the same design details and geometry, it is only necessary to carry out the complete test programme on the highest size mark in the range plus an additional drop test, seat impact test and stability tests on the smallest size mark in the range.

If tables in a range of size marks are all manufactured with the same design details and geometry, it is only necessary to carry out the complete test programme on the highest size mark in the range plus an additional impact stability test on the smallest size mark in the range.

In the event of failure in any of the chairs/tables in the above test programme, it is necessary to carry out the complete test programme on each chair/table size mark individually.

3.2 Sequence of testing

The tests shall be carried out in the order the clauses are numbered in this standard.

4 Safety requirements

In order to minimise the risk of personal injury or damage to clothing, the following requirements apply:

- a) edges of the seat, back rest and arm rests, which are in contact with the user when sitting in the chair shall be rounded with a minimum 2 mm radius;
- b) edges of the handles shall be rounded with a minimum 2 mm radius in the direction of the force applied;
- c) all other edges and corners with which the user may come into contact with during normal use shall be smooth, rounded or chamfered and shall have no burrs;
- d) distance between accessible moving parts operated by powered mechanisms, e.g. gas lifts, shall always be either < 8 mm or ≥ 25 mm;
- e) with the exception of setting up or folding tables and chairs, there shall be no accessible gaps ≤ 8 mm or ≥ 25 mm created during normal movements and actions;
- f) adjustment controls shall not operate inadvertently or accidentally;
- g) open ends and feet of tubular components shall be capped or otherwise closed;
- h) parts shall not be detachable without the use of an appropriate tool;
- i) parts which are lubricated shall be covered in order to avoid staining;
- j) reflection of the working surface of tables shall be a maximum 45° determined in accordance with EN 13722 at 60° ;
- k) tristimulus value of the working surface of tables shall be between 15 % and 75 % determined in accordance with EN 13721;
- l) chairs shall not overturn when tested as specified in 5.2;
- m) chairs shall show no structural failure which can affect safety when tested for strength and durability as specified in 5.3 and it shall still fulfil its function;
- n) tables shall not overturn when tested in accordance with 6.7 of EN 1730:2000 and with 6.16 of EN 1728:2000;
- o) tables shall show no structural failure which can affect safety when tested for strength and durability as specified in 6.2 and they shall still fulfil its function.

5 Testing of chairs

5.1 General

When references are made to EN 1022 or EN 1728, the method of determining the seat and back loading points specified is not always suitable for educational seating. For the purpose of this standard, the seat loading point shall be measured forward of the point S (EN 1729-1) and the back loading point shall be measured upwards from a point on the seat vertically below point S.

NOTE The static loads specified in clause 5 reproduce the loads applied by adults, who may occasionally sit on small chairs. These loads are sufficiently large to make it unnecessary to carry out durability tests on the smaller chair size marks.

5.2 Stability

The stability of chairs shall be tested according to EN 1022:2005 but using the loads, forces and loading points specified in the sub-clauses 5.1.1, 5.1.2 and 5.1.3. Both the practical and the calculative method may be applied.

5.2.1 Forward stability

The forward stability of chairs shall be tested in accordance with 6.2 or 8.2 of EN 1022:2005, except that the seat loads and the horizontal forces for the various chair sizes shall be as given in Table 1.

Table 1 — Forward stability of chairs

Chair size mark	Seat load N	Horizontal force N
0 and 1	200	20
2	250	20
3	350	20
4	500	20
5	600	20
6	600	20
7	600	20

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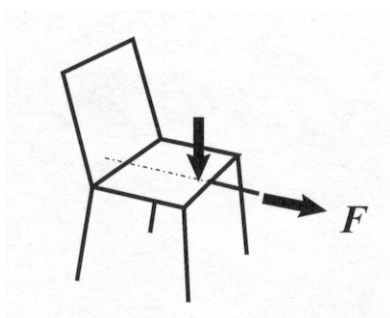


Figure 1 — Forward stability of chairs

5.2.2 Sideways stability

The sideways stability of chairs shall be tested in accordance with 6.4 or 8.2 of EN 1022:2005, except that the seat loads and the horizontal forces for the various chair sizes shall be as given in Table 2.

Table 2 — Sideways stability of chairs

Chair size mark	Seat load N	Horizontal force N
0 and 1	200	20
2	250	20
3	350	20
4	500	20
5	600	20
6	600	20
7	600	20

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Figure 2 — Sideways stability of chairs

5.2.3 Rearwards stability

The rearwards stability of chairs shall be tested in accordance with 6.6 or 8.5 of EN 1022:2005, except that the seat loads, horizontal forces and the loading points for the various chair sizes shall be as given in Table 3.

Table 3 — Rearwards stability of chairs

Chair size mark	Seat load	Point S to seat loading point mm	Seat to back loading point mm	Back force
	N			N
0 and 1	200	120	180	50
2	250	130	200	70
3	350	145	250	100
4	500	160	300	130
5	600	175	300	180
6	600	185	300	180
7	600	185	300	180

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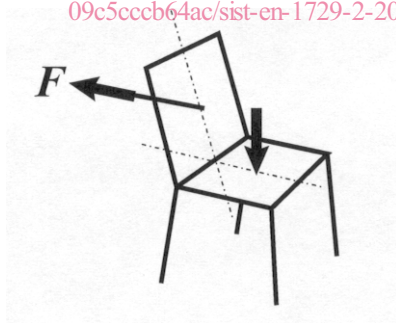


Figure 3 — Rearwards stability of chairs

5.3 Strength and durability

With the exception of the drop test (clause 5.3.9), which shall be tested according to Annex A, the strength and durability of the chairs shall be tested in accordance with EN 1728 using the loads and cycles specified below.

5.3.1 Seat and back static load (EN 1728:2000 clause 6.2.1)

Table 4 — Seat and back static load of chairs

Chair size mark	Cycles	Seat load N	Back load N
0 and 1	10	1 300	Max 410
2	10	1 600	Max 450
3	10	1 600	Max 560
4	10	2 000	Max 700
5	10	2 000	Max 700
6	10	2 000	Max 700
7	10	2 000	Max 700

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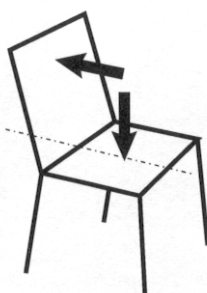


Figure 4 — Seat and back static load of chairs