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

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

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EUROPEAN STANDARD

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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 9 December 2011.

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Foreword

This document (EN 1729-2:2012) 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of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1729-2:2006.

EN 1729 consists of the following parts under the general title "*Furniture – Chairs and tables for educational institutions*":

— *Part 1: Functional dimensions;*

— *Part 2: Safety requirements and test methods.*

The main changes with respect to the previous edition are listed below:

- a) additional consideration of swivel chairs;
- b) additional consideration of chairs with arm rests,
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- c) clarification of seat loading points and back loading points,
- d) amendment of some loads and forces;
- e) modification of Annex B (informative) "Test method for determination of stability of chairs placed on tabletops".

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, Croatia, 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, Turkey and the United Kingdom.

EN 1729-2:2012 (E)**1 Scope**

This European Standard specifies safety requirements and test methods for chairs and tables for general educational purposes in educational institutions.

It applies to furniture for use with laptop computers or portable devices, but not to special purpose workstations, e.g. laboratories, ranked seating and workshops.

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 EN 1729-1 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 1335-3:2009, *Office furniture – Office work chair – Part 3: Test methods*

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*

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

EN 15373:2007, *Furniture – Strength, durability and safety – Requirements for non-domestic seating*

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 (including multi-size and height adjustable) in the range, plus additional 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.

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 Testing of height adjustable and multi-size chairs and tables

Where tables or chairs can be set to a number of different configurations the worst case configuration shall be tested.

Where tables and chairs can be adjusted to suit multiple size marks the item shall be assessed in accordance with EN 1729-1 at all size marks, and structural testing shall be carried out at the highest size mark only.

3.3 Sequence of testing

Testing shall be carried out according to EN 1729-1 prior to testing in EN 1729-2. The tests shall be carried out in the order that the clauses are numbered in this European 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 or chamfer;
- 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 and < 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) the finish of the work surface shall not exceed silky matt (corresponding to 45 gloss units or to a 60° reflectometer value of less than 20) to minimise specular reflections in accordance with EN 13722 at 60° ;
- k) chairs shall not overturn when tested as specified in 5.2;
- l) chairs shall show no structural failure which can affect safety when tested for strength and durability as specified in 5.3 and they shall still fulfil their function. For overload tests there shall be no visible fracture or breakage;
- m) tables shall not overturn when tested in accordance with EN 1730:2000, 6.7;
- n) 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.

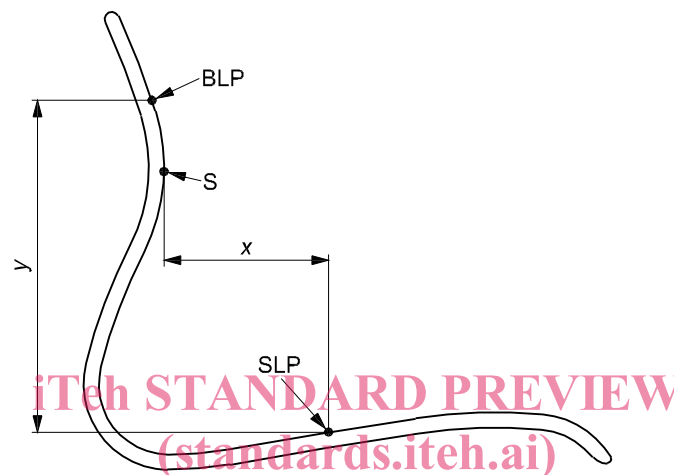
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5 Testing of chairs

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 European 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.

**Key**

BLP Back Load Point

S point S

SLP Seat Load Point

 x point S to seat loading point y seat to back loading point

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Figure 1 — Seat and back loading points

Table 1 — Seat and back loading points

Chair size mark	Point S to seat loading point (x) mm	Seat to back loading point (y) mm
0 and 1	120	180
2	130	200
3	145	250
4	160	300
5	175	300
6	185	300
7	185	300

Where the geometry of the seat does not allow the back load to be applied at the point defined in Table 1 the load shall be applied at the nearest point (up or down) on the back structure. The bending moment (back load, N , x seat to back loading point, m) shall remain constant.

5.2 Stability

5.2.1 General

The stability of chairs shall be tested according to EN 1022:2005 but using the loads and forces specified in 5.2.2, 5.2.3, 5.2.4 and 5.2.5; and the loading points as defined in Table 1. Both the practical and the calculative method may be applied.

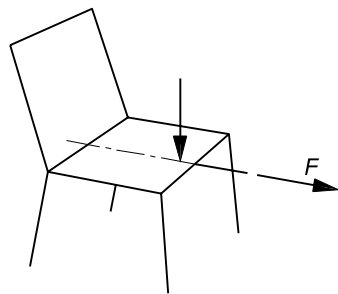
5.2.2 Forward stability

The forward stability of chairs shall be tested in accordance with EN 1022:2005, 6.2 or 8.2, except that the seat loads and the horizontal forces for the various chair sizes shall be as given in Table 2.

Table 2 — Forward stability of chairs

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

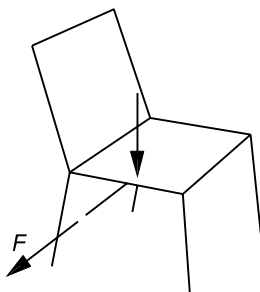
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**Key** F horizontal force**Figure 2 — Forward stability of chairs****5.2.3 Sideways stability****5.2.3.1 Sideways stability of chairs without armrests**

The sideways stability of chairs shall be tested in accordance with EN 1022:2005, 6.4 or 8.2, except that the seat loads and the horizontal forces for the various chair sizes shall be as given in Table 3.

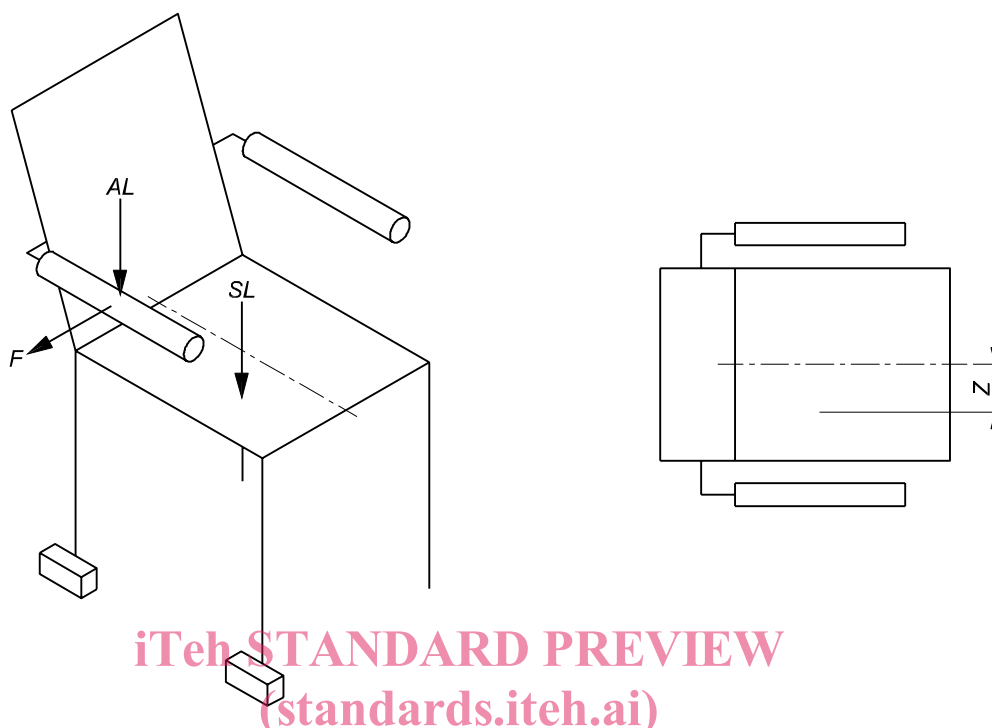
Table 3 — Sideways stability of chairs

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

**Key** F horizontal force**Figure 3 — Sideways stability of chairs**

5.2.3.2 Sideways stability of chairs with armrests

The sideways stability of chairs shall be tested in accordance with EN 1022:2005, 6.4 or 8.2, except that the seat loads, armrest loads and the horizontal forces for the various chair sizes shall be as given in Table 4.



Key

- AL Armrest load
- SL Seat load
- F horizontal force
- Z position of seat load

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Figure 4 — Sideways stability of chairs with armrest

Table 4 — Sideways stability of chairs with armrests

Chair size mark	Seat load (SL) N	Armrest load (AL) N	Horizontal force (F) N	Position of seat load (Z) mm
0 and 1	80	120	20	50
2	100	150	20	70
3	140	210	20	80
4	200	300	20	85
5	250	350	20	90
6	250	350	20	95
7	250	350	20	100