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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

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

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EUROPEAN STANDARD
NORME EUROPÉENNE
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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 draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 207.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 1729-2:2021 (E)**European foreword**

This document (prEN 1729-2:2021) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1729-2:2012+A1:2015.

EN 1729 consist 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.*

In comparison with the previous edition, the following technical modifications have been made:

- a) extension of scope to include safety requirements and test methods for kindergarten, childcare institutions and early years education settings;
- b) removal of the gloss requirement for tabletops;
- c) additional durability requirements for single column chairs;
- d) additional consideration of chairs with arm rests;
- e) clarification of seat loading points and back loading points;
- f) amendment of some loads and forces;
- g) modification of Annex A” (informative) “Test method for determination of stability of chairs placed on tabletops”;
- h) inclusion of corner stability test for chairs;
- i) inclusion of requirements for auxiliary writing surfaces which are integral part of chairs;
- j) inclusion of forward stability test for tables;
- k) additional safety requirements for chairs sizemarks 0 to 3.

1 Scope

This document specifies safety requirements and test methods for chairs and tables for general educational purposes in educational institutions including kindergarten, childcare institutions and early years education settings.

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.

The chairs fulfilling the applicable requirements of this document are suitable for users weighing up to 110 kg.

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.

Annex A (informative) Test method for determination of the displacement of chairs placed on tabletops.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1022:2018, *Furniture — Seating — Determination of stability*

EN 1728:2012, *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 1730:2012, *Furniture — Tables — Test methods for the determination of stability, strength and durability*

EN 17191:2021, *Children's Furniture — Seating for children — Safety requirements and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

single column chair

chair whose upper part, which includes the seat, is mounted on a single load bearing structure with a diameter of up to 120 mm at its narrowest point

Note 1 to entry: This includes e.g. chairs with gas lifts.

[SOURCE: prEN 12520:2021, definition 3.4]

prEN 1729-2:2021 (E)**4 General test conditions****4.1 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.

Safety requirements for chairs and tables as specified in Clause 4 shall be assessed for all size marks in the range. Additional safety requirements as specified in Annex A shall be assessed for all size marks 0 to 3.

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.

If a chair is adjustable between two sizemarks (i.e. sizemark 3 and 5), largest sizemark (i.e. sizemark 5) shall be fully tested and the smallest sizemark (i.e. sizemark 3) shall only be tested for stability.

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.

4.2 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.

4.3 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 document.

5 Safety requirements**5.1 General safety requirements**

In order to minimize 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;

NOTE for commenting: This requirement conflicts with the requirement in 5.2 b) for chairs sizemarks 0 to 3.

- 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;

NOTE for commenting: This requirement conflicts with the requirement in 5.2 b) for chairs sizemarks 0 to 3

- f) adjustment controls shall not operate inadvertently or accidentally;
- g) when accessible to the user under normal use, 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) chairs shall not overturn when tested as specified in 6.2;
- j) chairs shall show no structural failure which can affect safety when tested for strength and durability as specified in 6.3 and they shall still fulfil their function. For overload tests there shall be no visible fracture or breakage;
- k) tables shall not overturn when tested as specified in 7.1 of this document;
- l) tables shall show no structural failure which can affect safety when tested for strength and durability as specified in 7.2 and they shall still fulfil its function.

5.2 Additional safety requirements for chairs sizemarks 0 to 3

Chairs sizemarks 0 to 1 (according to EN 1729-1) shall also fulfil the requirements of the clauses of EN 17191:2021 as listed below:

- a) 6.1 – Hazards from glass

There shall be no glass in seating for children

- b) 6.6 – Hazards from moving parts

5 mm restriction shall apply only to sizemarks 0 and 1. This safety distance shall be 7 mm for sizemark 2 and 3 chairs.

- c) 6.7 – Hazards from enclosures
- d) Clause 8 – Fire and thermal hazards

Verification shall be provided that all accessible textile materials do not produce surface flash when tested according to EN 71-2:2020, 5.5.1 and 5.5.2.

- e) Clause 11 – Product information

5.3 Additional safety requirements for chairs sizemarks 0 and 1

Chairs sizemarks 0 to 1 (according to EN 1729-1) shall also fulfil the requirements of the clauses of EN 17191:2021 as listed below:

- a) 6.4 – Hazards caused by folding of chairs
- b) 6.6 – Hazards from moving parts
- c) 6.8 – Hazards from entanglement

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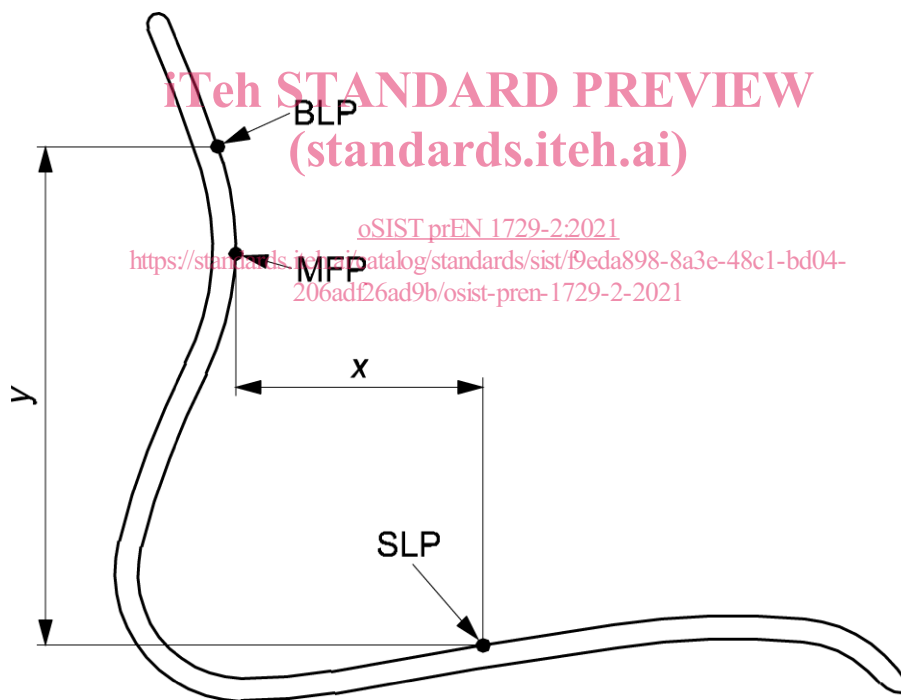
- d) 6.9 – Choking and ingestion hazards
- e) 6.10 – Suffocation hazards
- f) Clause 7 – Chemical requirements

Verification shall be provided that the migration of heavy metals in the surfaces of any material used that are accessible to the mouth of the child fulfil the requirements of EN 71-3.

6 Testing of chairs**6.1 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 document, the seat loading point shall be measured forward of the MFP (see Figure 1) and the back loading point shall be measured upwards from a point on the seat vertically below MFP.

NOTE The static loads specified in Clause 5 reproduce the loads applied by adults, who can 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 Loading Point
MFP	Most forward point
SLP	Seat loading point
x	MFP to seat loading point
y	seat to back loading point

Figure 1 — Seat and back loading points

Table 1 — Seat and back loading points

Chair mark	size	MFP to seat loading point (x)	Seat to back loading point (y)
		mm	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.

6.2 Stability

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6.2.1 General

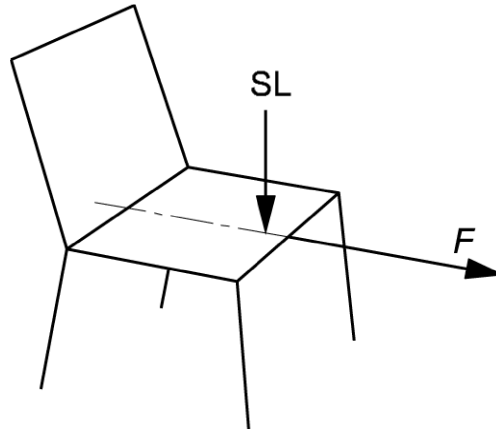
The stability of chairs shall be tested according to EN 1022:2018 but using the loads and forces specified in 6.2.2, 6.2.3, 6.2.4 and 6.2.5; and the loading points as defined in Table 1. Both the practical and the calculative method may be applied.

6.2.2 Forwards overturning

Chairs shall be tested in accordance with EN 1022:2018, 7.3.1 and 7.3.2 if applicable except that the seat loads and the horizontal forces for the various chair sizes shall be as given in Table 2.

Table 2 — Forwards overturning of chairs

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

**Key**

- F horizontal force
 SL seat load

Figure 2 — Forwards overturning of chairs**6.2.3 Sideways overturning****6.2.3.1 Sideways overturning of chairs without armrests**

Chairs shall be tested in accordance with EN 1022:2018, 7.3.4 except that the seat loads and the horizontal forces for the various chair sizes shall be as given in Table 3 and Figure 3.

Table 3 — Sideways overturning 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 to 7	600	20