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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Furniture - Strength, durability and safety - Requirements for non-domestic seating

Mobilier - Résistance, durabilité et sécurité - Exigences
applicables aux sièges à usage non domestique

Möbel - Festigkeit, Dauerhaltbarkeit und Sicherheit -
Anforderungen an Sitzmöbel für den Nicht-
Wohnbereich

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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 16139:2022) 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 16139:2013.

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

- a) introduction of single column seating;
- b) changes to Annex C (Informative) in terms of dimensional requirements;
- c) introduction of “side to side” durability requirements for “single column seating” and “side to side” test method in Annex D (normative);
- d) new Annex E (informative) new rationale for “single column seating”;
- e) new Annex F (normative) Test methods for finger entrapment and shear and compression;
- f) new Rolling resistance requirement and a new test methods in Annex G (Normative);
- g) new introduction of “leg rest” static requirement;
- h) introduction of “leg rest” durability requirement with a “leg rest” test method in Annex H (Normative);
- i) introduction of “backward fall test” requirement.

1 Scope

This document specifies requirements for the safety, strength and durability of all types of non-domestic seating intended to be used by adults with a weight of not more than 110 kg, including office visitor chairs.

This document does not apply to ranked seating, office work chairs, chairs for educational institutions, outdoor seating and to links for linked seating for which European Standards or drafts exist. It does also not apply to work chairs for industrial use.

This document does not include requirements for the durability of upholstery materials, castors, reclining and tilting mechanisms and seat height adjustment mechanisms.

This document does not include requirements for the resistance to ageing, degradation and flammability.

This document does not include requirements for electrical safety.

Annex A contains additional tests.

Annex B contains information on the level of test severity in relation to applications.

Annex C contains dimensional requirements for office visitor chairs.

Annex D contains a seat side-to-side durability test in D-G points.

Annex E contains a rationale for single column seating.

Annex F contains test methods for finger entrapment and shear and compression.

Annex G describes rolling resistance of the unloaded chair.

Annex H contains a test method for durability “Leg rest”.

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.

prEN 1022:2022, *Furniture - Seating - Determination of stability*

EN 1728:2012, *Furniture – Seating – Test methods for the determination of strength and durability*

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

accessible part

part to which access can easily be gained by the user when the seating is in its intended configuration of use and for which the probability of unintentional user contact is high

3.2

part accessible during setting up and folding

part to which access can only be gained when setting up and folding the furniture

3.3

castors

castors assembly comprising a housing, one or more wheels, an axle and, if required, accessories

3.4

leg rest

extension of the seat area intended to support the legs of the sitter

Note 1 to entry: A leg rest may or may not be permanently attached to the seat.

3.5

foot rest

component intended as an occasional support for the feet or to assist getting on and off a tall chair or tall stool

Note 1 to entry: A foot rest may be a part of the structure of the underframe of a chair or stool.

3.6

visitor chair

seating for one person used in the office environment additional to the office work chair

Note 1 to entry: It is used for meetings or consultations as well as for reading, writing, listening and waiting.

3.7

single column seating

item of seating whose upper part, which includes the seat, is mounted on a single support 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]

3.8

tall chair/stool seating

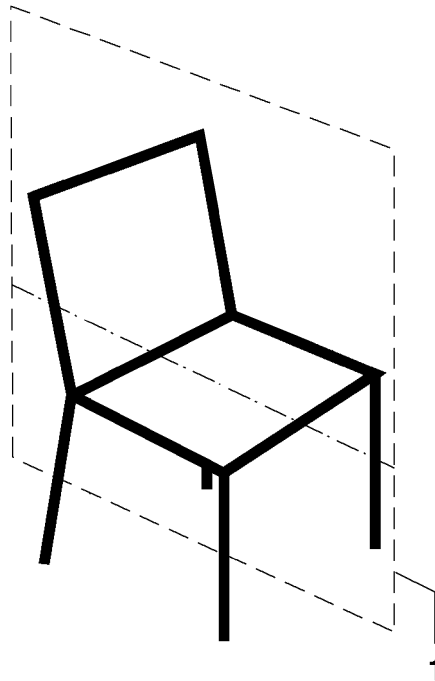
chair / stool with the height of seat from the floor high than the seat height specified in Table C.1 and with a foot rest

3.9

median plane

vertical plane passing through the geometric centre of the seat, dividing the seat from side to side into two equal parts

Note 1 to entry: See Figure 1.

**Key**

1 median plane

Figure 1 — Median plane**4 Safety, strength and durability****4.1 General requirements**

The seating shall be designed so as to minimize the risk of injury to the user.

All parts of the seating with which the user comes into contact during intended use, shall be designed so that physical injury and damage are avoided.

This requirement is met when:

- a) edges of the seating which are directly in contact with the user are rounded or chamfered;
- b) all other edges accessible during intended use are free from burrs and/or sharp edges.

Movable and adjustable parts shall be designed so that injuries and inadvertent operation are avoided.

It shall not be possible for any load bearing part of the seating to come loose unintentionally.

4.2 General requirements

There shall be no holes in the ends of tubular components or holes in rigid components in accessible parts between 8 mm and 12 mm, unless the depth of penetration is less than 10 mm. This requirement is fulfilled if there is no hazard present when tested in accordance with F.1.

4.3 General requirements**4.3.1 General**

The requirements contained within 4.3.2, 4.3.3 and 4.3.4 do not apply to electrically actuated furniture which are subject to the requirements of prEN 17684:2022, 5.3.3.

4.3.2 Shear and compression points when setting up and folding

Unless 4.3.3 or 4.3.4 are applicable, shear and compression points that are created only during setting up and folding are acceptable, because the user can be assumed to be in control of his/her movements and to be able to cease applying the force immediately upon experiencing pain.

The edges of parts moving relative to each other and creating shear and compression points shall be as specified in 4.1.

4.3.3 Shear and compression points under influence of powered mechanisms

This clause does not apply to shear and compression points generated by motorised components which are subject to the requirements of prEN 17684:2022, 5.3.3.

With the exception of operation of doors, flaps, lids and extension elements, there shall be no areas where the distance between two accessible parts moving relative to each other can be less than 25 mm, and more than 8 mm in any position during movement that could present a risk of injury to the user, created by parts of the furniture operated by powered mechanisms, e.g. mechanical springs and gas lifts.

This requirement is fulfilled if there is no hazard present when tested in accordance with F.2.1.

4.3.4 Shear and compression points during use

With the exception of operation of doors, flaps, lids and extension elements, there shall be no areas where the distance between two accessible parts moving relative to each other can be less than 25 mm, and more than 8 mm in any position that could present a risk of injury to the user, created by loads applied during normal use.

The loads used for durability tests within Table 1 are considered representative of normal use.

This requirement is fulfilled if there is no hazard present when tested in accordance with F.2.2.

4.4 Stability

The seating shall fulfil the relevant requirements of prEN 1022:2022.

4.5 Test methods

4.5.1 General

Seating shall be tested for strength and durability according to and in the order given in Table 1 and in accordance with the test conditions contained in EN 1728:2012.

The following tests described in Table 1 are considered to be relevant for safety.

Test No.: 1, 2, 4, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.

The guidance for selecting level L1 or L2 with due respect for the end use of the product is given in Annex B.

Table 1 — Safety, strength and durability tests

Test	Application	Reference	Loading ^a	Level	
				L1	L2
1. Seat static and back static load test	All	EN 1728:2012, 6.4	Seat: force, N Back: force, N 10 times	1 600 560 (min. force, 410)	2 000 700 (min. force, 410)
2. Seat front edge static load test	All ^a	EN 1728:2012, 6.5	Force, N 10 times	1 300	1 600
3. Vertical static load on back	All ^b	EN 1728:2012, 6.6	Force, N Seat load, N 10 times	600 1 300	900 1 800
4.1 Foot rest static load test	All	EN 1728:2012, 6.8	Force, N 10 times	1 300	1 600
4.2 leg rest static load test ^e	All	EN 1728:2012, 6.9	Force, N 10 times	1 300	1 600
5. Arm rest sideways static load test	All	EN 1728:2012, 6.10	Force, N 10 times	400	900
6. Arm rest downwards static load test	All	EN 1728:2012, 6.11	Force, N 5 times	750	900
7. Vertical upwards static load on arm rests	All	EN 1728:2012, 6.13.1, 6.13.2	Seat load, N Lift 10 times, during ≥ 10 s	250 or lift stack with max. 8 chairs of max. 25 kg	1 200
8. Combined seat and back durability test	All	EN 1728:2012, 6.17	Cycles Seat: 1 000 N Back ^c 300 N	100 000	200 000
10. Seat side-to-side durability test	Single column	Annex D	Force, N Cycles Alternating load applied to points D-G	1 100 20 000	1100 20000
11. Arm rest durability test	All	EN 1728:2012, 6.20	Cycles Force: 400 N	30 000	60 000
12. Foot rest durability test	All	EN 1728:2012, 6.21	Cycles Force: 1 000 N	50 000	100 000
13. Leg rest durability test ^d	All	Annex H	Cycles Force: 1 000 N	10 000	20 000
14. Leg forward static load test	Not on Single column	EN 1728:2012, 6.15	Force, N Minimum force Seat load, N 10 times	500 ^e 150 1 000	620 ^d 200 1 800