

English Version

Furniture - Domestic seating - Requirements for safety,
strength and durability

Meubles - Sièges à usage domestique - Exigences
relatives à la sécurité, à la résistance et à la durabilité

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (prEN 12520:2023) 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 12520:2015.

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

- updated to reflect the finger entrapment requirements within CEN/TR 17202, including an Annex containing test methods;
- definition of single column seating was added;
- durability test method and requirement level was added;
- Table 1 updated with information on Applicability of test method dependent on type of the seating;
- seat impact test updated with requirements dependent on the seat height adjustability;
- testing of durability of electrically operated seating products added.

1 Scope

This document specifies the minimum requirements for the safety, strength and durability of all types of domestic seating for adults.

It does not apply to ranked seating, seating for non-domestic use, office work chairs, office visitors' chairs, chairs for educational institutions, outdoor seating and to links for linked seating for which European Standards exist.

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

It does not include requirements for electrical safety.

It does not include requirements for the resistance to ageing, degradation, flammability and ergonomics.

The tests are based on use by persons weighing up to 110 kg.

Annex A (normative) describes the seat side-to-side durability test in D-G points.

Annex B (informative) gives rationales for some of the tests referred to in Table 1.

Annex C (normative) describes the test methods for finger entrapment and shear and compression.

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, *Furniture — Seating — Determination of stability*

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

EN 13759:2012, *Furniture — Operating mechanisms for seating and sofa-beds — Test methods*

prEN 17684:2022, *Furniture — Electrically operated furniture — Stability, strength, durability and mechanical safety requirements*

3 Terms and definitions

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

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

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

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

single column seat

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 1022:2022, 3.12]

4 Test sequence

The tests shall be carried out on the same sample in the order in which they are listed in this document.

5 Safety, strength and durability

5.1 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 when the seating is positioned in its intended configuration of use shall be designed so that physical injury and damage are avoided.

This requirement is met when:

- a) the edges and corners of the seating which are directly in contact with the user are rounded or chamfered;
- b) all other edges and corners 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.

All parts that are lubricated to assist sliding shall be designed to protect users from lubricant stains when in normal use.

5.2 Holes in tubular or rigid components

There shall be no holes in the ends of tubular components or holes in rigid components in accessible parts between 7 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 C.1.

5.3 Shear and compression points

5.3.1 General

The requirements contained within 5.3.2, 5.3.3 and 5.3.4 do not apply to electrically actuated furniture, which are subject to the requirements of prEN 17684:2022, 5.3.3.

5.3.2 Shear and compression points when setting up and folding

Unless 5.3.3 or 5.3.4 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 their 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 5.1.

5.3.3 Shear and compression points under influence of powered mechanisms

With the exception of operation of doors, flaps 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 C.2.2.

5.3.4 Shear and compression points during use

With the exception of operation of doors, flaps and extension elements, there shall be no areas where the distance between two accessible parts moving relative to each other can be less than 18 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 C.2.2.

5.4 Stability

The seating shall fulfil the relevant requirements of EN 1022.

In the case of seating, which might not fulfil the stability requirements before carrying out any tests, the applicable stability may be carried out before starting the sequence of tests specified in Table 1.

5.5 Test methods

5.5.1 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.

Tests no. 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 15 are considered to be relevant to safety.

Table 1 — Tests and test sequence

Test	Application	Reference	Test parameters	
1. Seat static load and back static load test	All	EN 1728:2012, 6.4	Seat force F_1 , N	1 300
			Back force F_2 , N	450
			Minimum back force, N	410
			Load applied to seats not being tested, N	750
			Cycles	10
2. Seat front edge static load test	All	EN 1728:2012, 6.5	Force, N	1 300
			Load applied to seats not being tested, N	750
			Cycles	10
3. Foot rest and leg rest static load test ^a	All	EN 1728:2012, 6.8 and 6.9	Force, N	1 000
			Minimum seat force, N	750
			Cycles	10