



SLOVENSKI STANDARD
oSIST prEN 12520:2023
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Pohištvo - Sedežno pohištvo za domačo uporabo - Zahteve za varnost, trdnost in trajnost

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

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

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

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Pohištvo

Furniture

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EUROPEAN STANDARD
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English Version

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

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

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

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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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

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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.

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prEN 12520:2023 (E)**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.

prEN 12520:2023 (E)**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

Test	Application	Reference	Test parameters	
4. Arm rest sideways static load test	All	EN 1728:2012, 6.10	Force, N Cycles	300 10
5. Arm rest downwards static load test	All	EN 1728:2012, 6.11	Force, N Cycles	750 10
6. Combined seat and back durability test ^b	All	EN 1728:2012, 6.17	Seat force F_3 , N Back force F_4 , N Load applied to seats not being tested, N Cycles	1 000 300 750 25 000
7. Seat front edge durability test	All	EN 1728:2012, 6.18	Force, N Cycles	800 20 000
8. Seat side-to-side durability test	Single column	Annex A	Force, N Cycles Alternating load applied to points D-G	1 100 20 000
9. Arm rest durability test	All	EN 1728:2012, 6.20	Force, N Cycles	400 10 000
10. Leg forward static load test	Not single column or single column non-swivel	EN 1728:2012, 6.15	Force, N (max.) Seat load, N Cycles	400 1 000 10
11. Leg sideways static load test	Not single column or single column non-swivel	EN 1728:2012, 6.16	Force, N (max.) Seat load, N Cycles	300 1 000 10
12. Seat impact test	All	EN 1728:2012, 6.24	Drop height, mm Cycles (fix seat height) Cycles (adjustable seat height)	180 10 5 in highest position 5 in lowest position
13. Backward fall test ^c	All	EN 1728:2012, 6.28	Number of impacts	5
14. Back impact test ^d	All	EN 1728:2012, 6.25	Height of fall, mm or angle, Cycles	120 28 10
15. Durability of electrically operated seating products	All	EN 13759:2012	Cycles	5 000

^a For foot rest the test is only applicable to seating with a seat height greater than 600 mm.

^b The minimum back force is the force that just prevents rearward overturning.

^c This test is only for single seating units where the back will be the first part of the structure to strike the floor and the force used to overturn the chair rearwards is less than 30 N.

^d This test is for all seating not tested in accordance with Test 13.

prEN 12520:2023 (E)**5.5.2 Requirements**

The safety, strength and durability requirements are fulfilled when during and after testing in accordance with Table 1:

- a) there are no fractures of any member, joint or component;
- b) there is no loosening of joints intended to be rigid;
- c) seating fulfils its functions after removal of the test loads;
- d) seating fulfils the stability requirements.

6 Information for use

Information for use shall be available in the language of the country in which it will be delivered to the end user. It shall contain at least the following details:

- a) information regarding the intended use (i.e. domestic use);
- b) assembly instructions, where applicable;
- c) instructions for the care and maintenance of the seating;
- d) if the seating is fitted with seat height adjustments with energy accumulators, an additional note is required pointing out that only trained personnel may replace or repair seat height adjustment components with energy accumulators.

7 Test report

The test report shall include at least the following information:

- a) reference to this document;
- b) piece of furniture tested, e.g. description of item, specification, drawings, photographs;
- c) details of defects observed before testing;
- d) any variation from the specified temperature range;
- e) test results;
- f) name and address of the test facility;
- g) date of test.

Annex A (normative)

Seat side-to-side durability test in D-G points

A.1 General

Position the seating on the test surface according to EN 1728:2012, 5.2 with its components as specified in Table A.1.

A.2 Loading points

A.2.1 General

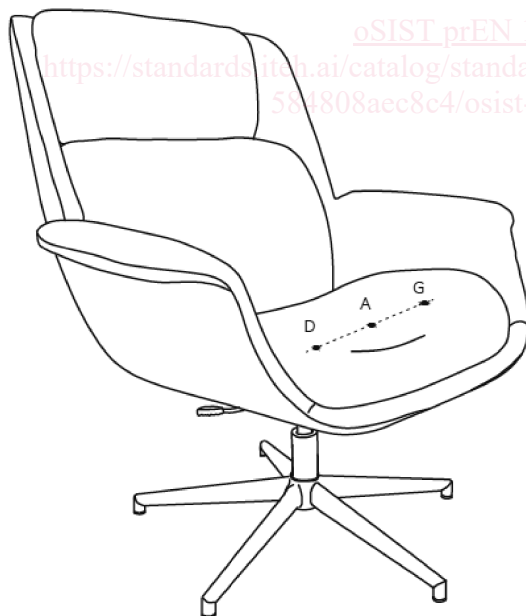
The seat reference point A need to be determined according to EN 1728:2012, 6.2.

A.2.2 Loading point D

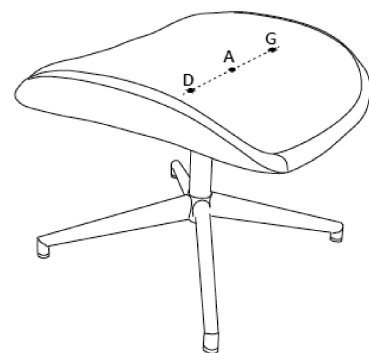
The point 150 mm to the right of loading point A (A.2.1) but not less than 100 mm from the edge of the seat structure. See Figure A.1.

A.2.3 Loading point G

The point 150 mm to the left of loading point A (A.2.1) but not less than 100 mm from the edge of the seat structure. See Figure A.1.



a) Seating with backrest



b) Seating without backrest