

Furniture — Strength, durability and safety — Requirements for domestic seating

ICS 97.140

National foreword

This British Standard is the UK implementation of EN 12520:2010. It supersedes BS 4875-1:2007 and DD ENV 12520:2000 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FW/0/2, Domestic and Contract Furniture.

A list of organizations represented on this committee can be obtained on request to its secretary.

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

Meubles - Résistance, durabilité et sécurité - Exigences
relatives aux sièges à usage domestique

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

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Foreword

This document (EN 12520:2010) 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of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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1 Scope

This European standard 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.

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

It does not include requirements for electrical safety.

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

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, *Domestic furniture — Seating — Determination of stability*

EN 1728:2000, *Domestic 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.

**3.1
accessible parts**
parts 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
parts accessible during setting up and folding**
parts to which access can only be gained when setting up and folding the furniture

**3.3
shear and squeeze points**
shear and squeeze points exist if the distance between two accessible parts moving relative to each other can be more than 7 mm or less than 18 mm in any position during movement

4 Test sequence

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

5 Constructional requirements

5.1 General requirements

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

These requirements are met when:

- a) edges of the seat, back rest and arm rests, which are in contact with the user when sitting are rounded or chamfered. All other edges accessible during use shall be free from burrs and/or sharp edges;
- b) ends of hollow components are closed or capped.

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

5.2 Shear and squeeze points

5.2.1 Shear and squeeze points when setting up and folding

Unless 5.2.2 or 5.2.3 are applicable, shear and squeeze points, as defined in 3.3, that are created only during setting up and folding, including tipping seat, 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 squeeze points shall be as specified in 5.1.

5.2.2 Shear and squeeze points under influence of powered mechanisms

With the exception of tipping seats there shall be no shear and squeeze points created by parts of the seating under powered mechanisms e.g. springs and gas lifts.

NOTE Electrically operated seating is covered by EEC Directives for EMC, Machinery, Low Voltage or Medical Devices.

5.2.3 Shear and squeeze points during use

There shall be no shear and squeeze points created by loads applied during normal use.

The loads applied during normal use can be found in Table 1.

Shear and squeeze points are not acceptable if a hazard is created by the weight of the user during normal movements and actions, e.g. attempting to move the seating by lifting the seat or by adjusting the backrest.

NOTE This hazard is best prevented by the use of automatic locking mechanisms.

5.3 Stability

The seating shall fulfil the relevant requirements of EN 1022.

5.4 Strength and durability

5.4.1 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.

Table 1 — Tests and test sequence

| Test | Reference | Test parameters | |
|--|-----------------------------|---|-------------|
| 1. Seat and back static load test | EN 1728:2000, 6.2.1 and 6.3 | Seat: force N Back: force N 10 times | 1300 450 |
| 2. Seat front edge static load test | EN 1728:2000, 6.2.2 | Force, N 10 times | 1300 |
| 3. Foot rail static load test ^a | EN 1728:2000, 6.4 | Force, N 10 times | 1000 |
| 4. Arm sideways static load test | EN 1728:2000, 6.5 | Force, N 10 times | 300 |
| 5. Arm downwards static load test | EN 1728:2000, 6.6 | Force, N 10 times | 700 |
| 6. Seat and back fatigue test | EN 1728:2000, 6.7 and 6.9 | Cycles Seat: 1000 N Back: 300 N | 25000 |
| 7. Seat front edge fatigue test | EN 1728:2000, 6.8 | Cycles Force: 800 N | 20000 |
| 8. Arm fatigue test | EN 1728:2000, 6.10 | Cycles Force: 400 N | 10000 |
| 9. Leg forward static load test | EN 1728:2000, 6.12 | Force, N (max.) Seat load, N 10 times | 400 1000 |
| 10. Leg sideways static load test | EN 1728:2000, 6.13 | Force, N (max.) Seat load, N 10 times | 300 1000 |
| 11. Seat impact test | EN 1728:2000, 6.15 | Drop height, mm, 10 times | 180 |
| 12. Backwards fall test ^b | Annex A.1 | Number of impacts | 5 |
| 13. Back impact test ^c | EN 1728:2000, 6.16 | Height of fall, mm ⁰ 10 times | 120/28 |
| <p>a This test is only applicable to seating with a seat height greater than 600 mm.</p> <p>b 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.</p> <p>c This test is for all seating not tested in accordance with Test 12.</p> | | | |

5.4.2 Strength and durability requirements

The 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 are 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) assembly instructions, where applicable;
- b) instructions for the care and maintenance of the seating;
- c) 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 European Standard;
- 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) details of any deviations from this European Standard;
- g) name and address of the test facility;
- h) date of test.

Annex A (normative)

Backward fall test

A.1 Backward fall test

Place the unloaded seating on the drop test floor (EN 1728:2000, subclause 5.3) in normal use position.

Apply a rearward horizontal force to a point 50 mm below the top of the backrest in the centre of the backrest. Measure the force required to lift the front legs off the floor.

If the measured force is less than 30 N push the top of the backrest rearwards until it reaches the equilibrium point (see Figure A.1). Allow it to fall freely on its back without initial force or velocity.

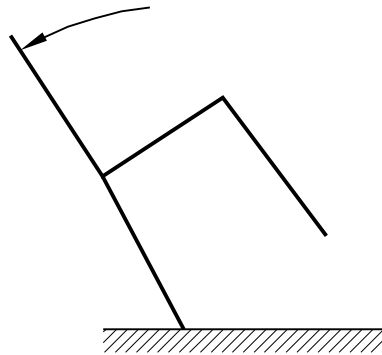


Figure A.1 — Backward fall test

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