

EUROPEAN STANDARD

EN 581-3

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English version

**Outdoor furniture — Seating and tables for camping, domestic and contract use —
Part 3: Mechanical safety requirements and test methods for tables**

Mobilier d'extérieur — Sièges et tables pour usages
domestique, collectif et de camping — Partie 3:
Exigences et essais de sécurité mécanique des tables

Außenmöbel — Sitzmöbel und Tische für Camping-,
Wohn- und Objektbereich — Teil 3: Mechanische
Sicherheitsanforderungen und Prüfverfahren für
Tische

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CEN

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 207, Furniture, the Secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.

This text is one part of a general standard concerning safety and performance requirements for outdoor seating and tables.

The work programme of CEN/TC 207/WG 4 includes the following items:

EN 581-1, *Outdoor furniture — Seating and tables for camping, domestic and contract use — Part 1: General safety requirements*;

ENV 581-2¹, *Outdoor furniture — Seating and tables for camping, domestic and contract use — Part 2: Mechanical safety requirements and test methods of seating*;

EN 581-4¹, *Outdoor furniture — Seating and tables for camping, domestic and contract use — Part 4: Physical characteristics — Durability*;

EN 581-5¹, *Outdoor furniture — Seating and tables for camping, domestic and contract use — Part 5: Requirements and test methods for surfaces*;

EN 581-6¹, *Outdoor furniture — Seating and tables for camping, domestic and contract use — Part 6: General characteristics*.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

¹ In preparation.

1 Scope

This part of EN 581 specifies the mechanical safety requirements and test methods of outdoor tables for camping, domestic and contract use, for adults, except permanently fixed tables and street furniture, without regard to materials, design/construction or manufacturing processes.

This standard does not apply to outdoor furniture for severe contract use where higher requirements may be necessary.

It includes an informative annex A, giving a test which may be used to check the behaviour of outdoor tables at high temperatures.

2 Definitions

For the purposes of this European Standard, the following definitions apply.

2.1

outdoor furniture for contract use

outdoor furniture intended for non-private use in places with public access, like restaurants, open-air swimming pools, vocational and leisure sites. Due to this public use they are submitted to extreme stresses

2.2

outdoor furniture for domestic use

outdoor furniture intended for private use in places without public access like garden, wintergarden, terrace, balcony etc.

2.3

outdoor furniture for camping use

in accordance with the need for easy transportation, outdoor furniture for camping use is foldable or detachable and of light-weight design. It is intended for use in connection with camping and travelling

2.4

outdoor table

camping table

table with a fixed or extending top, removable feet or not, folded or not

2.5

coffee table

table with a height restricted to a fixed top, removable feet or not, folded or not

2.6

serving trolley

mobile table with mobile or fixed tray(s) usually provided with handles and wheels

3 General test conditions

3.1 Preliminary preparation

Before any of the tests are commenced, the item shall be old enough to ensure that it has developed its full strength.

The test unit shall be tested as delivered. Knock-down furniture shall be assembled according to the instructions supplied with it. If the furniture can be assembled or combined in different ways, the most adverse combination shall be used for each test. Knock-down fittings shall be tightened before testing if applicable. Further tightening shall not take place unless this is specifically required by the manufacturer.

The test unit shall be stored in indoor ambient conditions for at least one week immediately prior to testing.

With the exception of tests described in annex A, the tests shall be carried out in normal indoor ambient conditions but, if during a test, the atmosphere temperature is outside the range 15 ° to 25 °, the maximum and/or minimum temperature shall be recorded in the report.

3.2 Tolerances

Unless otherwise stated:

- all forces shall have an accuracy of $\pm 5\%$ of the nominal force;
- all dimensions shall have an accuracy of $\pm 1\text{ mm}$ of the nominal dimension;
- all masses shall have an accuracy of $\pm 0.5\%$ of the nominal mass.

The tolerances for position of loading pads shall be $\pm 5\text{ mm}$.

4 Test equipment

Unless otherwise stated, the tests may be applied by any suitable device because results are not dependent upon the apparatus.

The forces in fatigue and static tests shall be applied sufficiently slowly to ensure that dynamic effects are negligible. The forces in fatigue tests shall be applied sufficiently slowly to ensure that heating does not occur.

4.1 Floor surface

Horizontal, flat and rigid with a smooth surface.

4.2 Stops

To prevent the table from sliding but not from overturning not higher than 12 mm except in cases when the design of the table needs the use of higher stops. In which case, the minimum height to prevent the table item from sliding shall be used.

4.3 Vertical force application device

A device which can apply vertical forces and meets the requirements specified in the relevant test methods. The forces shall be applied evenly distributed to the product through a suitable flat face of 100 mm diameter having a front edge radius of 12 mm. The flat face is part of the force application device.

4.4 Steel test tube

For the test on tables which support parasols, 18 mm in diameter and 1.5 mm in thickness steel tube with a height so that the force can be applied at 2 200 mm height.

4.5 Horizontal force application device

A device which can apply horizontal forces and meets the requirements specified in the relevant test methods. The forces shall be applied evenly distributed to the product through a suitable flat face of 100 mm diameter having a front edge radius of 12 mm. The flat face is part of the force application device.

5 Test methods and requirements

In the case of designs not catered for in the test procedures, carry out the test as far as possible as described and state any deviations in the test report.

5.1 Sequence of testing

The tests shall be carried out on the same sample in the following order:

- stability, when a table is not likely to pass the test;
- strength;
- horizontal fatigue;
- strength;
- stability.

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5.2 Stability

5.2.1 Purpose of the test

Determination of the ability of outdoor tables to withstand forces which can result in overturning.

5.2.2 Test procedure

Place the table on the floor surface (4.1), in a normal position of use.

Carry out the test at the most adverse position.

Apply, by means of the vertical force application device (4.3), a vertical force F_1 (5.2.3) (and not a mass) at 100 mm from the outer edge of the table top, under the following conditions depending on the different table-top shapes (see Figure 1):

- square or rectangular table: at A_1 on the longitudinal axis, and at A'_1 on the transversal axis;
- table with extensions: at A_2 on the longitudinal axis with the extension pulled out, and at A'_2 on the transversal axis;
- round table: at A_3 , the point judged as the most adverse condition.

The table shall not overturn when F_1 is applied.

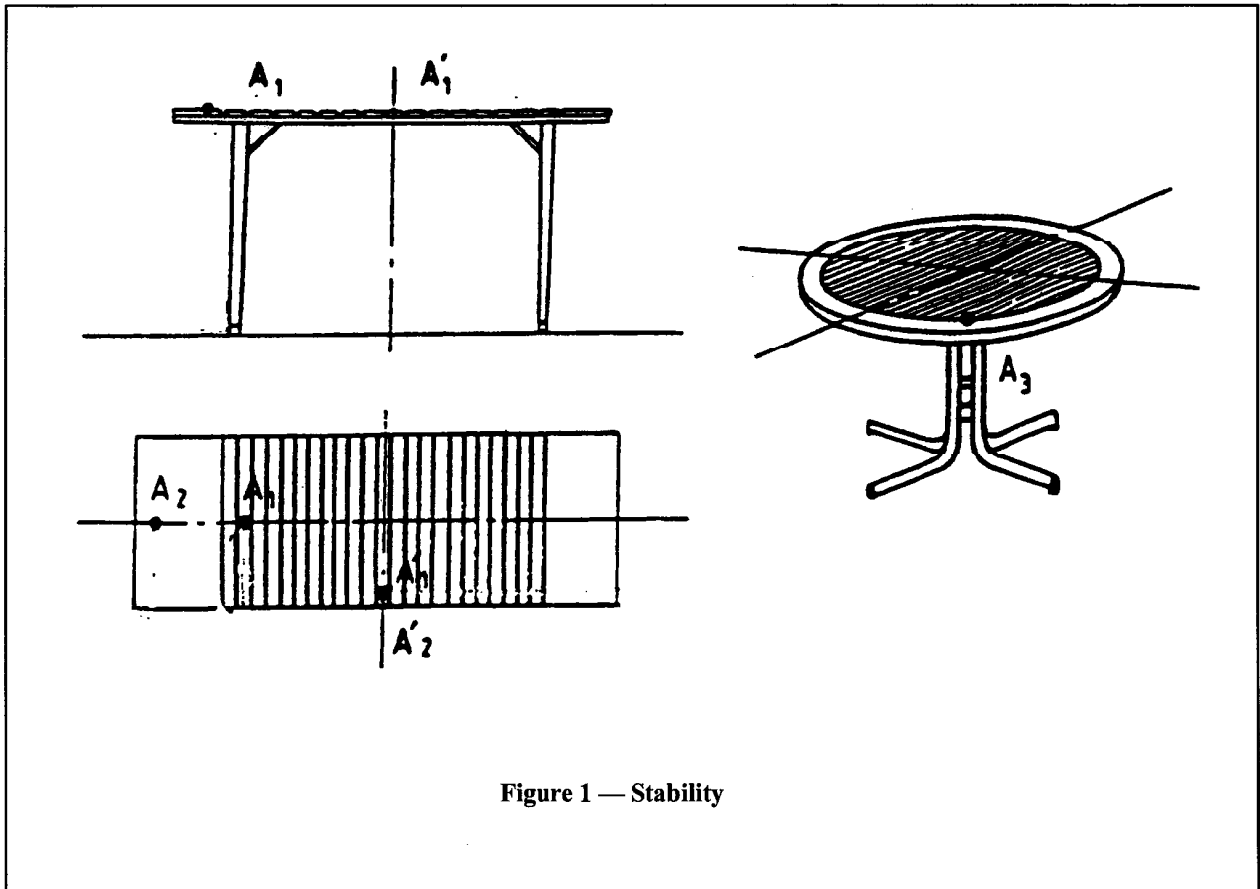
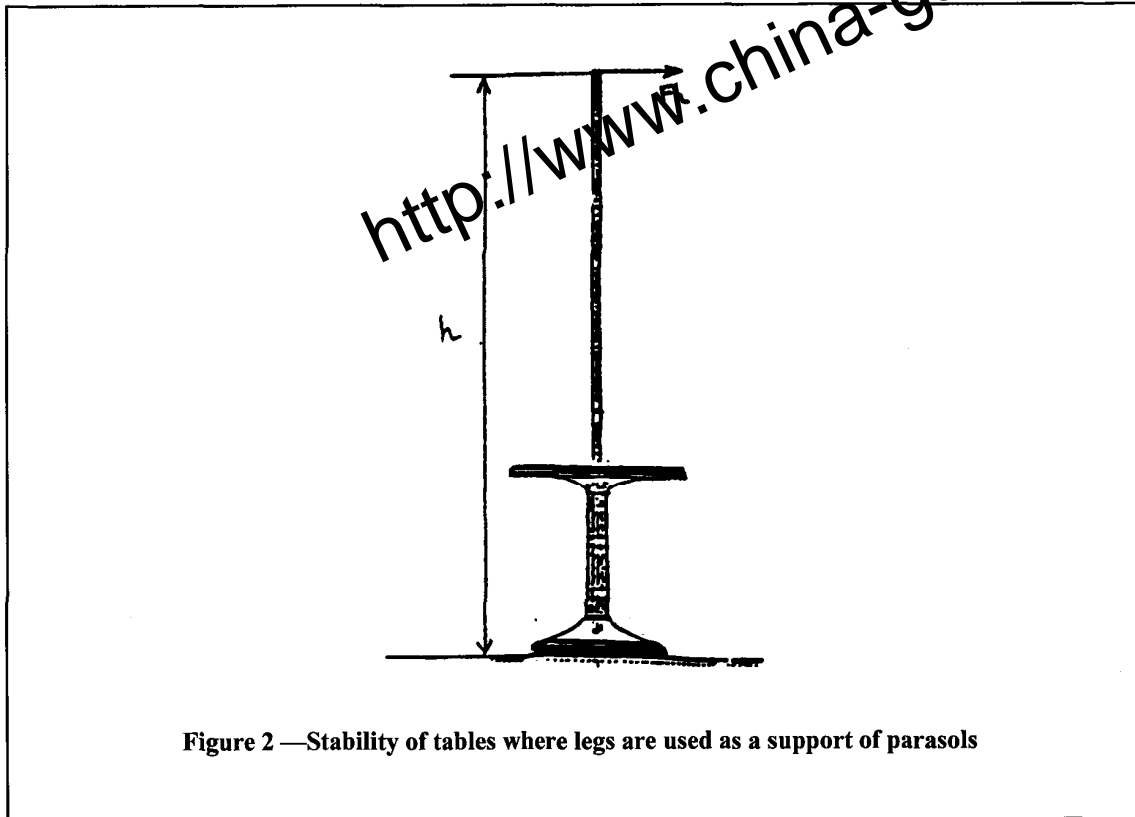


Figure 1 — Stability

Special case of tables where legs are used as a support of parasols (excluding parasols fitted with bases of their own)

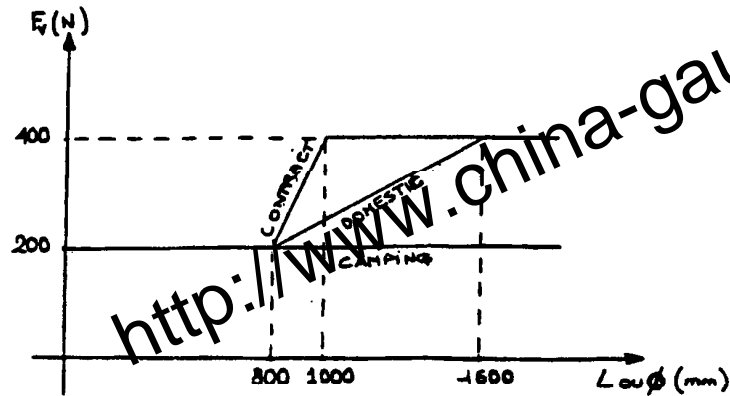
Secure the test tube (4.4) in the table's fixture for holding parasols.

Apply a horizontal force of 30 N at a height of 2 200 mm (see Figure 2).



5.2.3 Safety requirements

The force F_1 is specified in relation with the biggest dimension of the table top (L or \emptyset) and its use according to the following diagram:



The table shall not overturn when tested.

5.3 Strength

5.3.1 Purpose of the test

Determination of strength of the worktop and of the structure of outdoor tables under occasional vertical loads of short duration.

5.3.2 Test procedure

5.3.2.1 Loading of table top

Place the table on the floor surface (4.1) in normal position of use.

Apply, by means of the vertical force application device (4.3):

- for a table-top length $L \leq 1\,600$ mm, a force F_2 (5.3.3) at the geometric centre of the table (see Figure 3);
- for a table-top length $L > 1\,600$ mm, two forces F_2 (5.3.3) on points placed on the longitudinal axis of the table top with a distance of 400 mm on either side of the transversal axis (see Figure 3).

Carry out 10 applications, 30 s each, with 5 s to 10 s between applications.

Dimensions in millimetres

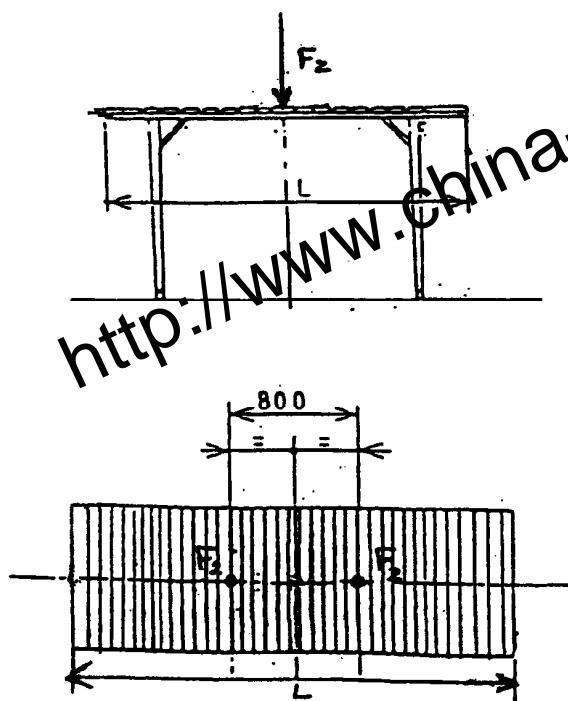


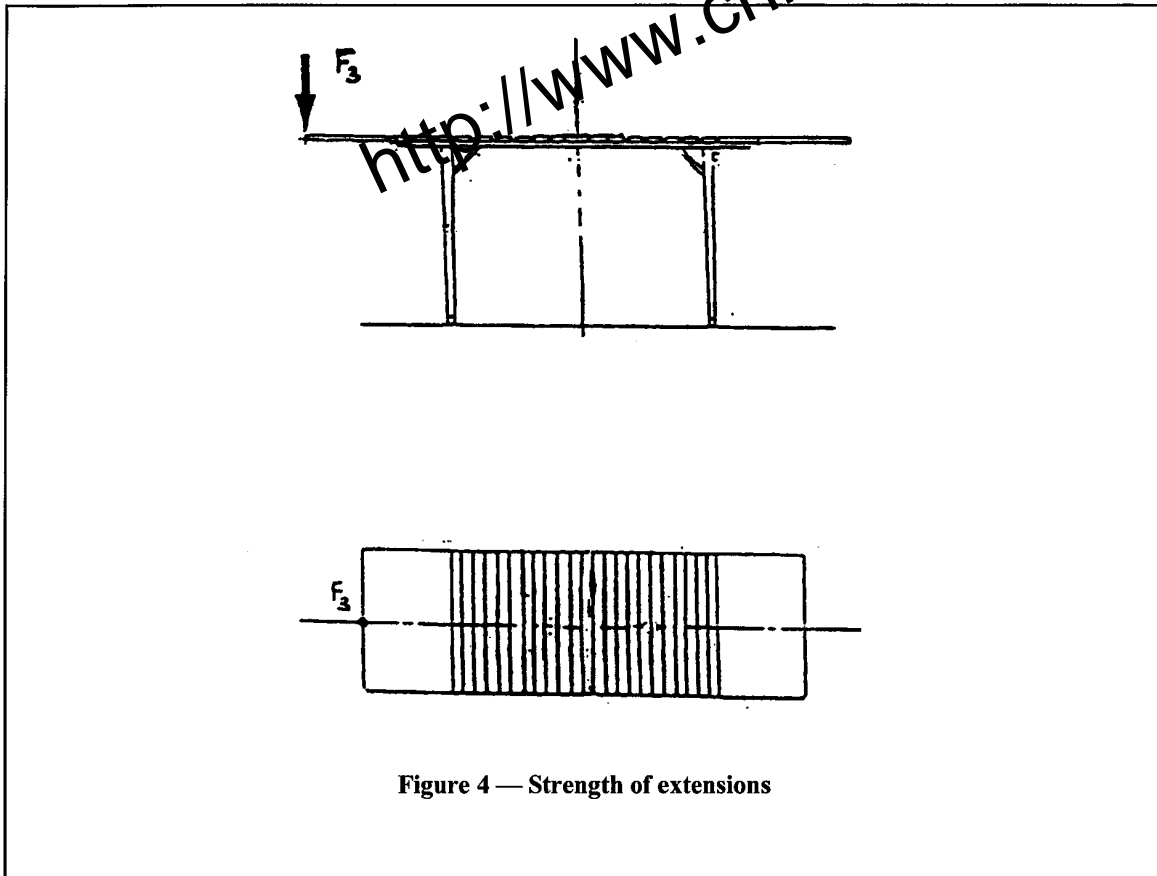
Figure 3 — Strength of table top

5.3.2.2 Loading of extensions

Load the table top with a mass evenly distributed, required to avoid any overturning during the application of the force subsequently.

With the end extensions extended, apply a force F_3 (5.3.3) on the outside edge at the middle of the width (see Figure 4).

In the case of central extensions, apply the force F_3 (5.3.3) at the most adverse position.



5.3.3 Safety requirements

	Camping	Domestic	Contract
F_2	500 N	750 N	1 000 N
F_3	100 N	200 N	350 N

At the end of the test, there shall be no structural or other deterioration able to compromise safety, and the table shall still be able to fulfil its functions (folding, unfolding, adjustment, operation of extensions).

5.4 Horizontal fatigue test

5.4.1 Purpose of the test

Determination of durability of outdoor tables under small cyclic forces (careful movement for example), to ensure that, during use, they can absorb displacements without a significant deformation of the top, retaining an adequate level of safety.

5.4.2 Test procedure

Place the table on the floor surface in normal use position, with the feet placed against stops (4.2) as shown in Figure 5 to prevent sliding, but without preventing deformation.

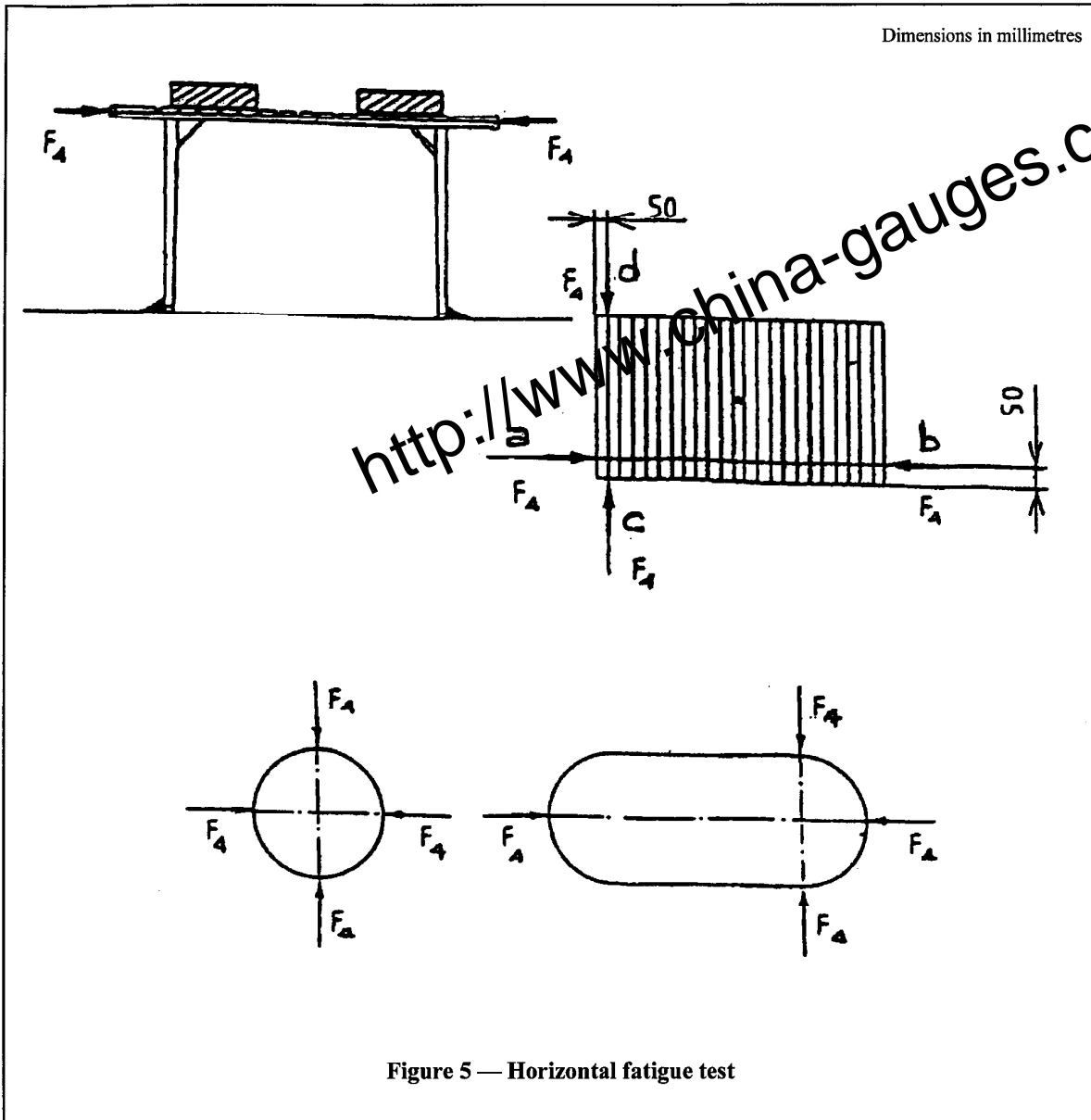
Load the table top, as close as possible to the legs, so that it remains horizontal under load, up to a maximum of 75 kg.

Alternately and successively apply, by means of the horizontal force application device (4.5), a force F_4 (5.4.3) in the order a, b, c, d horizontally and perpendicularly to the edge of the table top at 50 mm from its edge (or along two perpendicular axes for round and similar tables, and along the longitudinal axis at the junction of straight and curved parts for oblong tables) (see Figure 5).

Carry out n cycles (5.4.3), each cycle breaking down as follows: $F_4(a) + F_4(b) + F_4(c) + F_4(d)$ with a frequency of four cycles per minute.

NOTE This test can be carried out in two stages: n cycles in the longitudinal direction, then n cycles in the transverse direction.

In these conditions, the frequency shall be doubled.



5.4.3 Safety requirements

	Camping	Domestic	Contract
Force F_4	100 N	150 N	150 N
Number of cycles n	5 000	10 000	20 000

At the end of the test, there shall be no structural or other deterioration able to compromise safety, and the table shall still be able to fulfil its functions (folding, unfolding, adjustment, operation of extensions).

6 Test report

The test report shall include the following information:

- a) reference to this part of the European Standard;
- b) details of piece of furniture tested;
- c) manner of mounting if appropriate;
- d) any defects observed before testing;
- e) the test results according to the applicable clauses;
- f) details of any deviations from this part of the European Standard;
- g) the name and address of the test facility;
- h) the date of test.

Annex A (informative) **Behaviour of outdoor tables at high temperatures**

A.1 General test conditions

Tables should be subjected to the high temperature tests specified in this annex if they have load bearing components made of plastic.

A load bearing component is a part which experiences a bending load when the test forces are applied.

A.2 Stability at high temperature

These tests are applicable to domestic and contract tables for outdoor use but not camping tables.

A.2.1 Test procedure

The test sample should be conditioned at the specified temperature for at least 6 h before testing and be kept at the required temperature throughout the duration of the test.

- Domestic tables should be tested at 40 °C.
- Contract tables should be tested at 50 °C.

Tests may be carried out at more extreme temperatures according to the marking or instructions put on by the supplier.

With the sample conditioned for temperature as specified above, carry out the test specified in 5.2, except that a sheet of 3 mm thick plywood 300 mm × 300 mm should be interposed between the loading pad and the table.

A.2.2 Requirements

At the end of the test, there should be no damage that affects function or safety, including stability.

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