
Kuhinjsko pohištvo - Varnostne zahteve in preskusne metode za vgrajene in prostostoječe omare in delovne plošče

Kitchen furniture - Safety requirements and test methods for built-in and free standing kitchen cabinets and work tops

Küchenmöbel - Sicherheitstechnische Anforderungen und Prüfverfahren für eingebaute und freistehende Küchenschränke und Arbeitsplatten

Mobilier de cuisine - Exigences de sécurité et méthodes d'essais pour meubles de cuisine a fixer et a poser et plans de travail

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ICS:

97.040.10 Kuhinjsko pohištvo Kitchen furniture

SIST EN 1153:1996**en**

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English version

**Kitchen furniture - Safety requirements and test
methods for built-in and free standing kitchen
cabinets and work tops**

Mobilier de cuisine - Exigences de sécurité et
méthodes d'essais pour meubles de cuisine à
fixer et à poser et plans de travail

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

1 Scope

This European standard specifies safety requirements on the structure of built-in and free-standing kitchen units, work tops and breakfast bars including those with glass in their construction.

It applies to units after installation. This standard does not apply to catering equipment. However, safety, depending on the structure of the building, is not included e. g. the strength of wall hanging cabinets includes only the cabinet and its parts. The wall and the wall attachment are not included.

This standard specifies requirements to prevent serious injury through normal functional use, as well as misuse that might reasonably be expected to occur.

It should be understood that the tests do not ensure that structural failure will not eventually occur as a result of habitual misuse or after an excessively long period of service.

Assessment of ageing, degradation and the heating effect of appliances are not included nor are the ergonomic aspects of safety and the resistance to fire.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

ISO 48 Rubber, vulcanized or thermoplastic - Determination of hardness (hardness between 10 IRHD and 100 IRHD)

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3 Definitions

For the purpose of this standard the following definitions apply:

3.1 free-standing unit:

A unit not attached to the structure of the building.

3.2 built-in unit:

A unit attached to the structure of the building, directly or via other units.

3.3 wall-mounted unit:

A unit supported entirely by one or more walls of the building.

3.4 top mounted unit:

A unit supported by the ceiling.

5.2 Wall surface

A rigid, vertical and flat surface.

5.3 Stops

Devices to prevent the sample from sliding but not tilting, not higher than 12 mm except in cases where the design of the sample necessitates the use of higher stops, in which case the lowest that will prevent the item from sliding shall be used.

5.4 Loading pad

A rigid cylindrical object, 50 mm in diameter, having a flat face with 12 mm radius on the edge.

5.5 Apparatus for slam open of drawers

An example for a suitable apparatus as well as calibration instructions are shown in annex A.

5.6 Deadloads

Masses which do not reinforce the structure. If bags with lead shot or the like are used, the bags shall be divided into small compartments to prevent the contents from moving during the test.

5.7 Glass marbles

Marbles between 10 mm and 15 mm in diameter shall be used during the test described in 8.5 (slam open test of drawers). They shall be in a flexible bag large enough to allow them to move during the test.

5.8 Impact plate

A 1,7 kg impact plate, with a steel plate of 200 mm x 109 mm x 10 mm faced with a 3 mm thick layer of rubber with a hardness of 85 IRHD according to ISO 48.

5.9 Impact hammer

A cylindrical object having a mass of 6,5 kg, supported from a pivot by a steel tube of 38 mm in diameter and with a wall thickness of 2 mm. The distance between the pivot and the centre of gravity of the striker shall be 1 m. The pendulum arm is pivoted by a low friction bearing (see figure 1).

apply to components whose centre of gravity is between 350 mm and 900 mm from the floor and whose total mass exceeds 35 kg (see Annex B).

Any external vertical glass components $\geq 0,1 \text{ m}^2$ in area, any part of which is less than 900 mm above the floor shall fulfill the requirements according to 8.9 or 8.10.

6.2 Constructional safety requirements

Components or part of the kitchen units and worktops with which the user may come into contact during normal use shall have no burrs and/or sharp edges, nor shall there be open-ended tubes.

To avoid the hazard of a pinching or scissoring action between accessible moving parts during normal use the safety distance between such parts shall be kept to $\leq 8 \text{ mm}$ or $\geq 25 \text{ mm}$ in any position during movement, with the exception of doors and extension elements, but including handles.

In order to avoid pinching points for feet the safety distance shall be $\geq 100 \text{ mm}$.

All roll front doors sliding vertically shall not move by themselves from any position higher than 50 mm measured from the closed position if this can cause any injury.

Units intended for storage of hazardous items or substances shall, when locked, not be opened by a force of $\leq 200 \text{ N}$ applied directly to the handle.

All drawers whose total mass (in accordance with 7.2) exceeds 10 kg but where safety tests are not carried out (see clause 7) should have effective open stops, i. e. they shall resist being pulled out of the carcass once by a force of 200 N applied to the handle of the loaded drawer or they shall be supplied with product information to the effect that drawers can easily be pulled out.

Additional requirements are specified for strength of work tops and stability of free standing units (see 8.7 and 9).

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7 Test parameters

7.1 Determination of the centre of gravity

The centre of gravity of a component or unit shall be taken as the geometric centre of the usable volume of drawers and cupboards and as the geometric centre of doors, flaps and shelves.

The height of the centre of gravity above the floor shall be measured for floor units or their components when installed according to the manufacturer's instructions. Adjustable feet shall be set at their middle position.

Height adjustable components of floor units shall be placed in their highest position.

All work-tops and wall or top-mounted units or components thereof are considered to have their centre of gravity more than 900 mm above the floor, unless restrictions are stated by the manufacturer.

7.2 Determination of total mass

The total mass shall be the mass of the component or unit plus the mass supported by it.

Unless conspicuously and durably marked by the manufacturer with a maximum allowable load, the mass supported shall be determined according to table 1, which specifies the load per unit area for shelves, flaps and bottoms and the load per unit volume for drawers and baskets.

The volume of baskets shall be taken as the volume contained below the top edge.

The volume of drawers shall be taken as the area of the drawer bottom multiplied by the clear height.

8.3 Pivoted doors

This test applies to all doors hinged to the carcase on one vertical side (including folding doors).

Load all components intended for storage purposes uniformly in accordance with table 1.

Load the door as shown in figure 4 with a load of 30 kg.

Swing the door 10 full cycles (back and forth) from a position $45^\circ \pm 2^\circ$ from fully closed to a position $10^\circ \pm 2^\circ$ from fully opened, but to a maximum of 135° .

Opening and closing can be done by hand using 3 s to 5 s for opening and 3 s to 5 s for closing.

After the test the door shall remain attached to the cabinet.

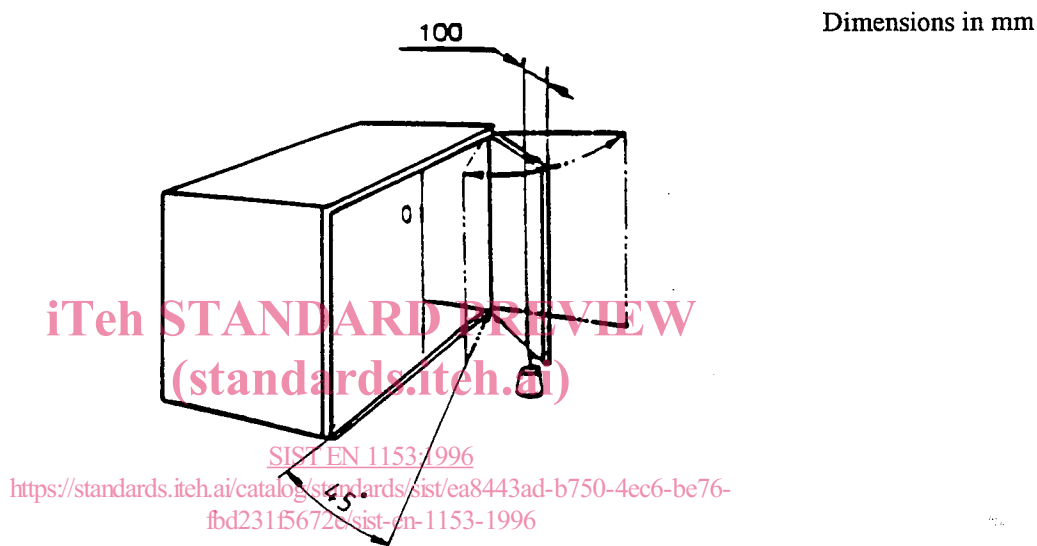


Figure 4: Load test of pivoted doors

8.4 Sliding doors and horizontal roll fronts (slam shut and open)

This test applies to all doors sliding horizontally including those constructed from hinged elements.

Load all components intended for storage purposes uniformly in accordance with table 1.

The door shall be opened/closed by means of a string or cord attached to the centre of the handle. If the handle has a length greater than 200 mm, the string shall be attached 100 mm below the top of the handle up to a maximum height from the floor of 1 200 mm (see figure 5).

Determine the mass, W , required to just move the door. The test mass shall be 4 kg plus the mass W .

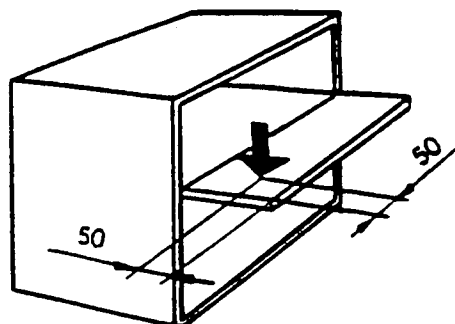
Close/open the door/roll front 10 times towards the fully closed/opened positions using the test mass ($W + 4$ kg).

Start the movement 300 mm from the closed/opened positions respectively.

The test mass shall be removed 10 mm before the door/roll front is fully closed/opened.

After the test the door and/or carcase shall show no fracture or damage that can affect the safety.

Dimensions in mm

**Figure 6: Strength test of flaps****8.7 Static load on work tops**

Load all components intended for storage purposes uniformly in accordance with table 1.

Load the work top vertically 10 times with 1 000 N at the position most likely to cause failure using the loading pad (5.4).

During each application maintain the load for 10 s.

After the test the work top and/or carcass shall show no fracture or damage that can affect the safety.

8.8 Wall and top mounted cabinets**8.8.1 General**

The unit shall be mounted according to the manufacturer's installation instructions. Where the manner of mounting is not unambiguously defined, the manner of mounting shall be recorded.

Adjustable wall attachment devices shall be set in the position most likely to cause failure.

NOTE: This position will normally be when adjusted to the maximum depth (as far from the wall as possible) and to the height adjustment range and when devices used for levelling adjustments are placed as low and as far apart as possible.

After the testing in accordance with 8.8.2 and 8.8.3 the unit shall remain attached as mounted and shall support the test load in accordance with 8.8.3.

8.8.2 Tests on movable parts and shelf supports

As soon as possible after the loading, carry out the following tests, if applicable:

Clause 8.2 Shelf supports

Clause 8.3 Pivoted doors

- c) On the most adverse corner 100 mm from each visible edge of the glass.

After the tests the glass shall neither become entirely dislodged, nor break, or it shall break safely in one of the following ways:

- d) Numerous cracks or fissures appear but no opening within the glass component through which a cone with 75 mm diameter can pass freely.
- e) Disintegration occurs but 3 min after impact the 10 largest crack-free particles shall weigh no more than the mass equivalent to 6 500 mm² of the original glass component.

NOTE: It is still necessary to gather experience with this test method.

8.10 Fragmentation test of the glass

The test shall be carried out on the glass component itself. Frames and/or other parts attached to the glass shall be removed.

2 samples shall be subjected to the test and both samples shall fulfil the requirements.

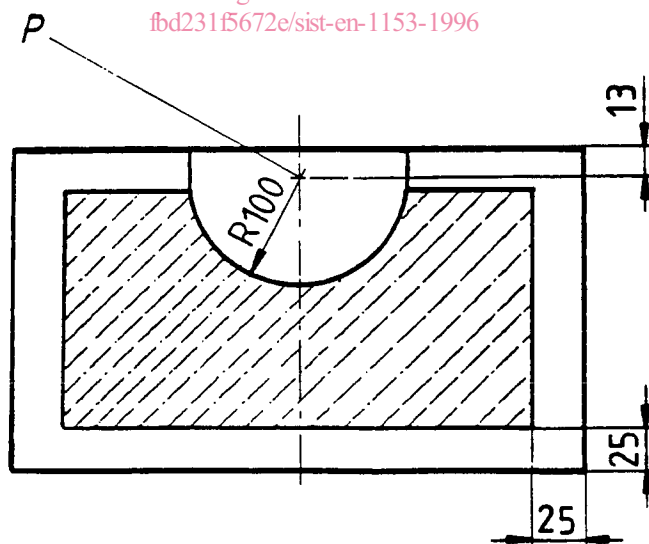
The glass shall be placed on the floor surface (5.1). In order to prevent the broken pieces from scattering contain the edges of the sample with a frame, adhesive tape or the like in such a manner that the broken pieces remain in place after breakage but without hindering expansion of the sample.

The sample shall be broken by means of the test hammer for fragmentation test (5.10). The blow shall be applied approximately 13 mm in from the longest edge of the glass at the midpoint of that edge (see figure 7).

The assessment is made on the glass except within a peripheral margin of 25 mm from the edge of the sample and an area having 100 mm radius from the point of impact (see hatched area in figure 7).

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Dimensions in mm



P Point of impact

Figure 7: Point of impact and area of assessment

A mask of 50 mm x 50 mm is placed on the fractured glass and the number of crackfree particles within the mask are counted. This assessment shall be undertaken on at least two areas of the sample. The areas chosen shall contain the largest particles.

After the tests there shall be a minimum of 40 particles in any 50 mm x 50 mm area.

NOTE: It is still necessary to gather experience with this test method.