



SLOVENSKI STANDARD

oSIST prEN 16647-1:2023

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Kamini na alkohol brez priključka na dimnik - Varnostne zahteve in preskusne metode - 1. del: Dekorativni kamini z ročnim upravljanjem za domačo uporabo

Alcohol powered flueless fireplaces - Safety requirements and test methods- Part 1: Manually operated decorative fireplaces for domestic use

Alkoholbetriebene abzugslose Feuerstätten - Sicherheitstechnische Anforderungen und Prüfmethode - Teil 1: Manuell betriebene dekorative Feuerstätten für den Haushaltsbereich

Foyers sans conduit et fonctionnant à l'alcool - Exigences de sécurité et méthodes d'essai - Partie 1 : Foyers décoratifs à fonctionnement manuel pour un usage domestique

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ICS:

97.100.40 Grelniki na tekoče gorivo Liquid fuel heaters

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Alcohol powered flueless fireplaces - Safety requirements and test methods- Part 1: Manually operated decorative fireplaces for domestic use

Alkoholbetriebene abzugslose Feuerstätten -
Sicherheitstechnische Anforderungen und
Prüfmethoden - Teil 1: Manuell betriebene dekorative
Feuerstätten für den Haushaltsbereich

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 46.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 16647-1:2023(E)**European foreword**

This document (prEN 16647-1:2023) has been prepared by Technical Committee CEN/TC 46 “Fireplaces for liquid fuels”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 16647:2015.

prEN 16647-1:2023 includes the following significant technical changes with respect to EN 16647:2015:

- Alignment with Mandate M/538 and Commission Decision (EU) 2015/547 throughout the full text;
- Change of Scope and splitting the document into two parts, this part covers manually operated fireplaces
- Removal of all requirements, regarding automatically operated fireplaces (e.g. Annex B), these will be covered in Part 2;
- Removal of gelatinous fuel;
- Restructure of Clause 5;
- Addition of requirements for glass screens in 5.3.3.1;
- Revision of the entire combustion Clause 5.3.6;
- Revision of Clause 9 (Factory production control).

This document has been prepared under a Mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

1 Scope

This document applies only to decorative fireplaces that have been manufactured for domestic use, which produce a flame using liquid alcohol, hereafter referred to as fuel.

NOTE 1 The requirements outlined in this document can also be applied for outside domestic settings. In that case additional or different rules on the use of the fireplaces can apply.

This document applies to free-standing, wall-mounted and built-in fireplaces.

This document applies to decorative fireplaces that require manual user interaction for ignition, filling, re-filling or extinguishing the fireplace.

NOTE 2 The fireplaces can contain some electric or electronic components.

This document applies to fireplaces ready for use, whose fuel box is of one unit or are an integral component of the fireplaces but not for fireplaces with a fuel tank separate from the fireplace.

This document does not apply to fireplaces specifically designed for heating food or keeping food warm (rechauds), nor does it apply to fireplaces for use in boats, caravans, other vehicles or outdoor areas.

This document does not apply to fireplaces with a power output higher than 4,5 kW or with a defined heating function.

NOTE 3 National regulation can restrict the power output to less than 4,5 kW.

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 1023-3:2000, *Office furniture - Screens - Part 3: Test methods*

EN 10088-3:2014, *Stainless steels - Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

EN 13240:2001+A2:2004, *Roomheaters fired by solid fuel — Requirements and test methods*

EN 13501-1:2018, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 60335-1:2012, *Household and similar electrical appliances - Safety - Part 1: General requirements*

EN 60335-2-102:2016, *Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections*

EN ISO 13732-1:2008, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)*

ISO/IEC Guide 37:2012, *Instructions for use of products by consumers*

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

appliance which is ready for use

unit comprising a burner and housing which are supplied ready for use by the manufacturer or a burner which is ready to be built into a setting as per the manufacturer's instructions

3.2

area of flame impingement

area which could be touched by the flame under normal operating conditions

3.3

body

unit comprising walls, base and covers made of non-combustible or thermally protected materials which encase the burner and within which the combustion takes place

3.4

burner

unit comprising at least secondary containment chamber and the burner opening

3.5

burner opening

opening in the burner at which the combustion of the fuel-air mixture takes place

3.6

secondary containment chamber

container in which the fuel storage tank is located, in order to contain excess, overfilled fuel or fuel leaking out of a defective fuel storage tank

3.7

decorative fireplaces fuelled by liquid fuel

appliance which is fuelled with liquid fuel and used for decorative purposes

3.8

fixed fireplace

appliance designed to be permanently fixed to the fabric of the building

3.9

free standing fireplace

appliance not designed to be permanently fixed to the fabric of the building and not provided with helping devices for moving

3.10

fuel

alcohol derivate alcohol with at least 95 % C₂H₅OH

3.11**filling material**

material inside of the burner to absorb the fuel

3.12**fuel storage tank**

container part of the appliance, from which the fuel is fed to the burner

3.14**minimum burner adjustment**

burner setting at lowest fuel consumption

3.15**ignition device**

device for ignition of the burner

3.16**maximum burner adjustment**

burner setting at highest fuel consumption

3.17**non-combustible material**

material classified A2-s1d0 as described in EN 13501-1:2018

3.18**test bag**

device for testing the stability of the fireplace

3.19**tabletop fireplace**

appliance which is placed exclusively on furniture, wall shelves in accordance with the manufacturer's definition and not in the walkable area within a room

4 Construction**4.1 General**

The fireplace shall be produced in such a way as to:

- rule out any type of permanent deformations or other damages on the fireplace after testing;
- withstand any tensions occurring during normal use;
- facilitate being operated safely.

The use of decorative elements e.g. imitation wood, pebbles in the area of flame impingement are not permitted.

4.2 Fuel Volume

The maximum burner volume shall not exceed 3 litres. The total fuel capacity of the fireplace shall not exceed 10 litres

NOTE National or regional legislation might impose lower limits.

prEN 16647-1:2023(E)**4.3 Construction**

The fireplace shall be fitted with a feature with an easy-to-use closing mechanism (in order to extinguish the flames). This mechanism shall work reliably and safely whilst the fireplace is in use. If required by means of auxiliary tools, these shall be provided with the fireplace.

Furthermore, the design of the construction shall ensure:

- any welding seams of the fuel storage tank shall be continuously welded;
- that replaceable parts or parts necessary for assembly on site shall not be fitted incorrectly;
- that all parts used for operation and/or maintenance of the fireplace shall be free from sharp edges which could constitute a safety hazard for the user;
- an extinguishing device fulfilling 5.3.5.

4.4 Materials

The parts which are in contact with the fuel shall be constructed with chrome-nickel steel X5CrNi18-10 according to EN 10088-3:2014.

NOTE 1 This is equivalent to chrome-nickel steel 1.4301.

If different materials are used, their suitability in terms of thermal, chemical, mechanical properties and corrosion resistance shall be proven by specification or by test; special consideration shall be given to materials used in areas touching the flame.

Soldering flux containing Asbestos and Cadmium shall not be used in any components of the fireplace. Any insulation material shall be non-combustible (A2s1d0 class, EN 13501-1:2018) and its application shall not pose any threat to health and safety.

Filling materials used in the burners shall be durable and specifically suited for the thermal strain under contact with fuel and its combustion and shall not alter their properties. Proof shall be presented in order to make sure the suitability of the material. This shall be tested according to 5.7.

NOTE 2 Certificates issued by a test institute are acceptable proof.

The burner, and all components which can reach a temperature over 65 K above room temperature, shall be constructed of non-combustible materials.

4.5 Stability

If fittings for the mounting or fixing of the fireplaces are provided with the fireplace, they shall be durable for the whole life of the fireplace.

If unintentionally moved or tilted during operation the fireplace shall be stable according to the tests in 5.1.

Fireplaces provided with wheels, or any other device helping their movement, shall be naturally blocked and it shall be impossible to move them without extinguishing the flame.

The freestanding fireplaces shall pass the stability test (tilting and sliding, impact, movement test), as stated in 5.1.

For all the tests the fuel tank shall be filled with fuel to the maximum level according to the user instruction.

For wall-mounted fireplaces, unintentional movement or release shall be prevented. Especially it shall not be possible to unintentionally unlatch or lift off the fireplace from its fittings. This should be checked during the test in 5.1.5.

NOTE Damage to the fireplace which is caused by impact stress (e.g. crack in a glass screen) may be accepted as long as the requirements towards mechanical stability and fuel spillage are met.

4.6 Ignition device

The fireplace shall be safe to ignite.

It shall be possible to light the fireplace with commonly available lighters, if the fireplace is not equipped with an integrated ignition device, a suitable lighter shall be provided with the fireplace. The user shall be able to ignite the fire from a horizontal minimum distance of 140 mm (shortest distance between the handle of the lighter or ignition device and the burner opening).

Devices which would enable the user to light the fire without visual contact with the flames are not allowed.

If a remote-control device is provided, an accidental ignition shall not be possible, and a child safety device shall be provided.

EXAMPLE Pressing two buttons is considered enough for child safety.

5 Test methods and requirements

5.1 Stability tests

5.1.1 General

Table 1 shows an overview of the tests which shall be performed according to type of fireplace.

Table 1 — Tests to be performed according to fireplace type

Test required	Fireplace		
	Fixed	Free standing	Tabletop
Tilting + Sliding	NO	YES	YES
Movement from impact	YES	YES	YES
Tilting from impact	NO	YES	YES
Stress	YES	NO	NO
Spillage	NO	YES	YES

For all of the tests, the fuel tank shall be filled with fuel or water to the maximum level according to user instruction or lower if any level is considered more critical.

It is recommended that all tests are performed by laboratory accredited according to EN ISO/IEC 17025.

5.1.2 Tilting and sliding test

The fireplace shall be placed on an inclinable cleaned, smooth surface of glass and without being fixed.

The surface shall be tilted up to 5° to all sides for free-standing fireplaces and tabletop fireplaces up to 10°.

The speed at which the surface is tilted shall not exceed $1,5 \pm 0,5^\circ$ increase of tilt angle/second.

The test is considered as passed if there is no movement, tilting nor spillage.

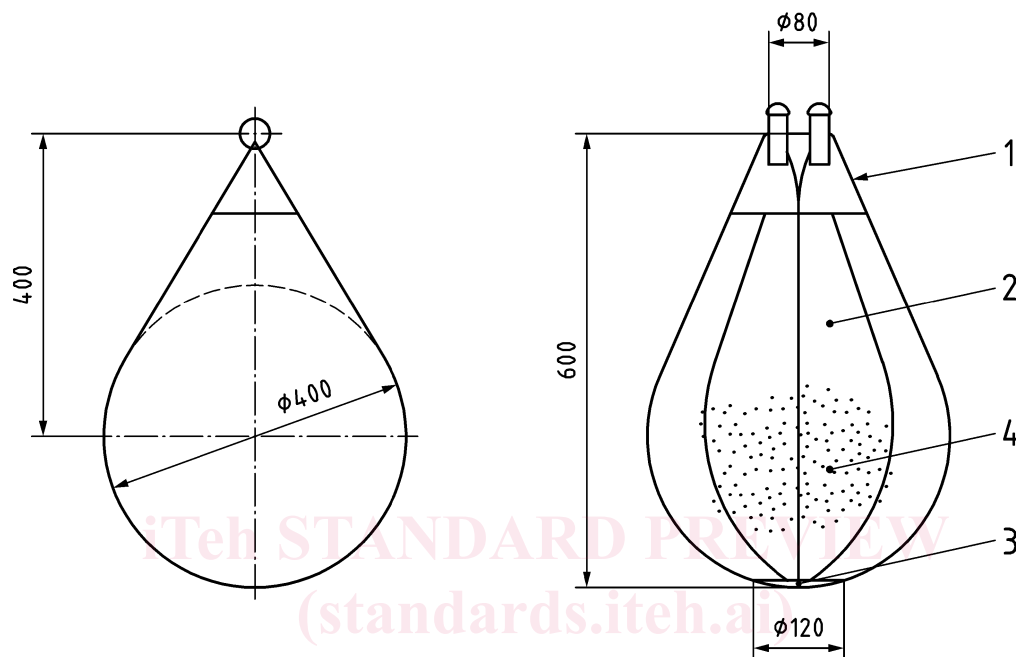
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5.1.3 Movement from impact test

The fireplace shall be placed on a cleaned, smooth, rigid, horizontal and level surface (e.g. glass plate).

A test bag (see Figure 1) shall be deflected by 600 mm and then swings freely towards to the centre of balance (see Figure 2).

Dimensions in millimetres

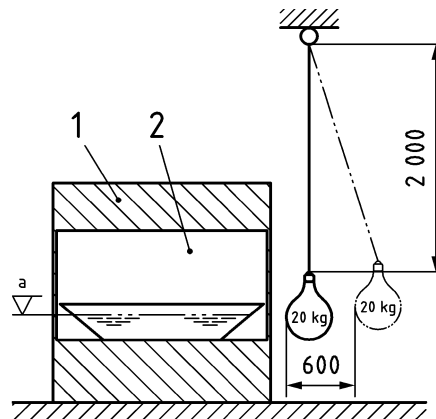


Key

- 1 leather string
- 2 eight canvas sections
- 3 leather bottom
- 4 20 kg dry corn

Figure 1 — Sphericoconical bag for the stability test

Dimensions in millimetres

**Key**

- 1 Example of fireplace
- 2 combustion chamber
- a maximum height of water or fuel

Figure 2 — Safety test for movement and leakage of fuel while striking against the fireplace

The test is considered as passed, if there is no spillage and the fireplace does not move more than 50 % of the safety distance stated in the user instruction. In any case, the fireplace shall not move more than 1 m.

5.1.4 Tilting from impact stress

The fireplace shall be placed on a cleaned, smooth, rigid, horizontal and level surface (e.g. glass plate). A stopping device/barrier, the purpose of which is to restrict the movement of the fireplace, shall be fixed on the floor next to the fireplace. Its height shall not exceed 12 mm (according to EN 1023-3:2000), provided that the construction of the fireplace does not require a higher stopping device/barrier. In that case, the height to be chosen shall be the lowest one which prevents the fireplace from moving (see Figure 3).

During the impact test with a pendulum from the side of the fireplace opposed to the stopping device/barrier, the fireplace shall not spill.

The test bag of 20 kg weight shall be suspended from a 2 m long rope in such a manner that it hangs directly next to the most critical point of the fireplace (with regards to tilting it - which is usually the point at the biggest distance from centre of balance) in 1 m height from the floor or next to its upper edge, if the fireplace is lower than 1 m. The test bag is deflected by 600 mm and then swings freely towards the fireplace.