INTERNATIONAL STANDARD

ISO 14895

Second edition
2016-06-01

Small craft — Liquid-fuelled galley stoves and heating appliances

Petits navires — Réchauds de cuisine et appareils de chauffage alimentés par un combustible liquide

Reference number
ISO 14895:2016(E)

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 188, *Small craft.*

This second edition cancels and replaces the first edition (ISO 14895:2000), which has been technically revised.

The revision covers the following main changes:

— widening the scope to include heating appliances; subsequently, requirements applicable to heaters and stoves are combined or differentiated by type of appliance;

— the above scope extension required a modification of general, installation and requirements for design and construction of appliances;

— a new clause on design and construction of heating appliances, as well as an annex on the information on heaters required for the craft owner's manual;

— references to ISO 7840, ISO 13297 and ISO 21487 have also been added.

Small craft — Liquid-fuelled galley stoves and heating appliances

1 Scope

This International Standard specifies the design, construction and installation of permanently installed galley stoves and heating appliances using fuels which are liquid at atmospheric pressure on small craft up to 24 m length of hull (L_H according to ISO 8666). It includes open flame galley stoves, ceramic hobs, blown air heaters and water heating appliances.

Cooking and heating appliances solely designed or intended as portable self-contained camping stoves or heaters are not covered. Other permanently installed cooking and heating appliances (such as solid-fuelled and liquid-fuelled natural draft stoves) are outside the scope of this International Standard and therefore covered by ISO 9094.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7840, *Small craft — Fire-resistant fuel hoses*

ISO 8469:2013, *Small craft — Non-fire-resistant fuel hoses*

ISO 9094, *Small craft — Fire protection*

ISO 10088:2013, *Small craft — Permanently installed fuel systems*

ISO 10133, *Small craft — Electrical systems — Extra-low-voltage d.c. installations*

ISO 10239, *Small craft — Liquefied petroleum gas (LPG) systems*

ISO 10240, *Small craft — Owner's manual*

ISO 12217-1, *Small craft — Stability and buoyancy assessment and categorization — Part 1: Non-sailing boats of hull length greater than or equal to 6 m*

ISO 12217-2, *Small craft — Stability and buoyancy assessment and categorization — Part 2: Sailing boats of hull length greater than or equal to 6 m*

ISO 12217-3, *Small craft — Stability and buoyancy assessment and categorization — Part 3: Boats of hull length less than 6 m*

ISO 13297, *Small craft — Electrical systems — Alternating current installations*

ISO 21487, *Small craft — Permanently installed petrol and diesel fuel tanks*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
galley stove
appliance designed for cooking that makes use of burners, an oven, a broiler or any combination of these items, by means of combusting liquid fuel

Note 1 to entry: Referred to as “stove” within the text.

3.2
heating appliance
appliance designed to heat air or water or a solid medium by means of combusting liquid fuel

Note 1 to entry: Referred to as “heater” within the text.

3.3
liquid fuel
fuel which is liquid at atmospheric pressure

EXAMPLE Kerosene and diesel fuel.

3.4
readily accessible
capable of being reached for operation, inspection or maintenance without removal of any craft structure or use of any tools

3.5
habitable space
space surrounded by permanent craft structure in which there is provision for activities such as sleeping, cooking, eating, washing/toilet, navigation, steering

Note 1 to entry: Spaces intended exclusively for storage, open cockpits with or without canvas enclosures and engine rooms are not included.

3.6
overheating
condition that exists when the manufacturer’s safe operating temperature is exceeded

3.7
open flame stove
galley stove where direct bodily contact with an exposed open flame is possible during normal operation

4 General

NOTE For the purposes of this International Standard, the term “appliances” will be used if deemed to cover both heaters and stoves.

4.1 Appliances shall be installed in accordance with the instructions supplied by the appliance manufacturer and in conformity with this International Standard.

4.2 Appliances using petrol as fuel or for priming, in any liquid or semi-liquid form, shall not be installed. Petrol is considered to be a hydrocarbon fuel, or blends thereof, which is liquid at atmospheric pressure and is used in spark ignition engines (in this context, kerosene is not regarded as petrol).

4.3 Heaters and their exhaust systems shall be installed outside areas where flammable vapours can accumulate.

4.4 Design and installation of the appliances shall consider their use in the marine environment, for example vibration, craft movements, temperatures, humidity and corrosion.

4.5 Appliance operating control(s) shall be readily accessible, and located to minimize possible injury from burners and/or hot components when being used.

4.6 Heaters shall be installed so that outgoing products of combustion pass through sealed ductwork terminating outside the craft.

4.7 Where user awareness for the safe operation of an appliance is required, a durable, permanently legible sign covering the operation, including the refuelling procedure if applicable, and any unique hazards involved with its use, shall be provided on or in the immediate vicinity. See 8.1, 8.2 and 8.3.

4.8 For appliances with electrical systems requiring connection to the craft's electrical system, the connections shall conform to the requirements of ISO 10133, or ISO 13297.

4.9 Appliances requiring priming shall be fitted with a readily accessible drip pan to contain any fuel overflowing from the priming fuel container under conditions of pitch and heel as applicable (see 6.8 for stoves and 7.1 for heaters). The drip pan shall be at least 20 mm deep.

4.10 Appliances shall not feature open flame pilot lights. If pilot lights are integral then they shall be installed so that outgoing products of combustion pass through sealed ductwork terminating outside the craft.

5 Installation

5.1 Appliances and any associated remote fuel tanks shall be securely fastened to the craft.

5.2 Every reasonable precaution should be taken in positioning appliances to minimize the risk of injury or damage.

5.3 The heater and/or heater exhaust components shall not constitute a risk of fire, even in the case of overheating. This requirement can be achieved by use and/or combination of

— adequate distance to hot parts,

— suitable ventilation to hot parts,

— fire resistant materials, and

— heat shields.

5.4 For stoves, a readily accessible shut-off valve, not integral with the stove, shall be located near remote, i.e. non-integral, fuel tanks. The valve shall be designed to close against the flow of fuel and shall indicate the off and on positions and the closing direction. If the valve is outside the galley, a second valve shall be fitted in the fuel line in the galley space in a readily accessible location without reaching above the burners and outside Zone II, as defined in ISO 9094. This requirement does not apply where the tank is located lower than the stove and there is no possibility of back siphoning or where a fire or fusible valve that prevents fuel from continuing to flow to an appliance in the event of a fire is installed in the appliance or near to the final fuel supply joint to it. Electrically operated shut-off devices such as fuel pumps, which are interrupting the fuel flow when not activated, are permitted.

For heaters, a fuel shut-off device shall be located near remote, i.e. non-integral, fuel tanks. The device shall be designed to close against the flow of fuel and in case of a manually operated valve shall indicate the off and on positions and the closing direction. Electrically operated shut-off devices such as fuel pumps which are interrupting the fuel flow when not activated are permitted.

5.5 Remote tanks installed in the compartment with the stove shall be located outside Zone II, as defined in ISO 9094.

5.6 For appliance fuel systems installed in engine rooms or machinery spaces, ISO 10088:2013 shall apply with the exception of 5.3.1, 5.3.9, 5.3.11, 5.4.2, 5.6 and 5.7.

5.7 Fuel-supply lines shall be solid drawn metallic piping or flexible hose and tube meeting the test requirements in ISO 8469:2013, Clause 5. If installed in the engine compartment, the hose or tube shall be fire resistant type A1 or A2, according to ISO 7840:2013.

5.8 The number of joints in fuel distribution pipes or hoses other than those required to connect required fuel line components (e.g. filters and bulkhead connections) shall be kept to a minimum.

5.9 The provisions for filling remote tanks shall be outside Zone II, as defined in ISO 9094.

5.10 The combustion air inlet shall be positioned or guarded so that it cannot be blocked.

5.11 The heating air supply may be fresh air or re-circulated air and shall be drawn from a clean area not likely to be contaminated by exhaust fumes emitted either by the propulsion engine, the heater or any other exhaust source. Any ductwork shall be securely fastened.

5.12 If the appliance consumes air for combustion from habitable spaces and no other means of ventilation is provided to the habitable space, then fixed ventilation shall be provided of size equal to or greater than the appliance's combustion air intake.

5.13 Exhaust outlet shall be located to avoid emissions from entering the habitable space(s) of the craft.

5.14 Any ducting used to route the hot heating air through the vessel shall be so positioned or protected that no injury or damage could be caused if it were to be touched.

5.15 Protection shall be provided to prevent human contact with exposed parts of the heating system exceeding a surface temperature of 110 °C. Examples of how this requirement can be met are by

— thermal insulation and or shielding,

— installation in a machinery room or a locker, and

— enclosure.

5.16 The heater or the heated medium shall not be liable to cause burns to persons. The surface temperature of any part of the heating system likely to come into contact with any person during normal craft operation shall not exceed a temperature of 85 °C.

5.17 Any brackets or ties used to support or secure such parts shall be of a suitable heat resistant material. If the heater is installed in a locker, then suitable steps shall be taken to protect any surrounding material and contents from heat damage.

5.18 The duplicate label (see Clause 8) shall be affixed where it is clearly visible if the original appliance label is obscured.

5.19 If a portable tank is used, it shall be of suitable design and labelled for the type of fuel used and shall have provisions to be secured on-board the craft.

6 Stove design and construction

6.1 Liquid-fuel priming pans or troughs shall be secured to the burner or heat generator so that their relationship is maintained.

6.2 Priming pans or troughs shall be designed to contain fuel without spillage under conditions of pitch or roll of the craft to 15° in any direction.

6.3 Pressurized liquid-fuel tanks integral with a stove shall be equipped with a pressure relief valve designed to release at not more than twice the vapour pressure of the fuel used at 60 °C.

6.4 Pressurized liquid-fuel tanks integral with a stove shall be shielded or insulated so that, under continuous operation at maximum heat, the pressure in the tank will not exceed 50 % of the relief valve setting.

6.5 Pressurized liquid-fuel tanks integral with a stove shall be designed to withstand four times the relief-valve setting.

6.6 Pressurized liquid-fuel tanks integral with a stove shall be tested to withstand a minimum internal pressure of two times the design working pressure or 700 kPa, whichever is greater.

6.7 Stoves shall be capable of operating during periods of craft pitch or heel at angles up to 15° in any direction sustained at the maximum angle for at least 15 s. Stoves in monohull sailing craft shall be capable of operation at sustained angles of heel of 30°. This may be obtained by the use of gimbals.

6.8 Means shall be provided on or adjacent to stove-top cooking surfaces to prevent both deep and shallow cooking utensils from sliding across or off the stove, at

— pitch angles of up to 15° for all craft, and

— heel angles of

  — 15° for engine-driven craft and sailing multihulls; and

  — 30° for monohull sailing craft.

This may be obtained by the use of gimbals.

6.9 Oven doors shall be provided with a means to prevent unintentional opening due to force from sliding food and utensils.

6.10 Operating, maintenance and installation instructions shall be supplied with every stove, drawing particular attention to set up, maintenance, regular operation, prevention of risks and risk management.

7 Heater design and construction

7.1 Heaters shall be designed and constructed to meet the following general requirements:

— be suitable for marine use;

— be able to operate at angles of 15° heel or pitch in any direction;

— have overheat control devices.