
**Small craft — Ventilation of
petrol engine and/or petrol tank
compartments**

*Petits navires — Ventilation des compartiments contenant des
moteurs à essence et/ou des réservoirs à essence*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 188, *Small craft*.

This third edition cancels and replaces the second edition (ISO 11105:1997), which has been technically revised.

The main changes compared to the previous edition are as follows:

- definitions have been added under [Clause 3](#);
- several clauses of the standard have been re-organized for clarity;
- [subclauses 4.4, 4.6, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 6.2, 6.4, 6.6, 6.7, 6.8](#) and [6.9](#) have been added;
- [subclauses 4.1, 4.2, 4.5, 4.7, 5.1, 5.2, 6.3, 6.10](#) have been amended;
- [Table 2](#) has been added;
- [Annex A](#) has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Small craft — Ventilation of petrol engine and/or petrol tank compartments

IMPORTANT — The colours represented in the electronic file of this document can be neither viewed on screen nor printed as true representations. For the purposes of colour matching, see ISO 3864-4 which provides colorimetric and photometric properties together with, as a guideline, references from colour order systems.

1 Scope

This document specifies requirements for the ventilation of petrol engine and petrol tank compartments in small craft having petrol engines for propulsion, electrical generation or mechanical power, to prevent the accumulation of explosive gases in these compartments. Personal watercraft are not covered in this document.

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.

ISO 8846:1990, *Small craft — Electrical devices — Protection against ignition of surrounding flammable gases*

ISO 11192:2005, *Small craft — Graphical symbols*

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

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

3.1

habitable space

space surrounded by permanent structure in which there is provision for any of the following activities: 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.

3.2

net compartment volume

volume that results from subtracting the volume of the *permanently installed* (3.4) items of equipment and accessories from the total, or gross, compartment volume

3.3

open to the atmosphere

<compartment or space> having at least 0,34 m² of permanent open area directly exposed to the atmosphere for each cubic meter of *net compartment volume* (3.2)

3.4
permanently installed

securely fastened so that tools, such as wrenches and screwdrivers, must be used for removal

3.5
craft
small craft

recreational boat, and other watercraft using similar equipment, of up to 24 m length of hull (L_H)

Note 1 to entry: The length of hull is defined in ISO 8666:2016.

3.6
ventilation

changing of air within a compartment by natural or powered means

Note 1 to entry: Ventilation can be affected by dilution of contaminated air, by local exhaust of contaminated air, or by introduction of fresh air.

3.7
weather enclosure

removable covering intended to be used when the boat is occupied

4 General requirements

4.1 Natural ventilation shall be provided in petrol tank compartments, except when the remaining volume is less than 3 l, in accordance with [Clause 5](#).

4.2 Powered ventilation and natural ventilation shall be provided in petrol engine compartments in accordance with [Clauses 5](#) and [6](#).

4.3 The ventilation duct sizes and airflow requirements shall be calculated based on net compartment volumes.

4.4 Ventilation ducts shall be self-draining.

4.5 Compartments or spaces containing fixed petrol engines and/or fixed petrol tanks shall be separated from habitable spaces. This requirement is met where the structure fulfils the following:

- a) the boundaries are continuously sealed (e.g. welded, brazed, glued, laminated or otherwise sealed);
- b) penetrations for cables, piping, etc. are closed by fittings, seals and/or sealants;
- c) access openings such as doors, hatches, etc. are equipped with fittings so they can be secured to minimize the flow of gas or vapours in the closed position.

The effectiveness of the boundary joints or sealing may be demonstrated either by documentation or visual inspection.

4.6 If storage compartments for portable tanks are provided, the storage compartment shall be open to the atmosphere or shall be fitted with a natural ventilation system according to [Clause 5](#).

4.7 External openings of ventilation intakes and exhausts shall be located according to ISO 10088:2013.

4.8 Ventilation supply and exhaust ducts shall not open directly into a habitable space.

4.9 Ventilation ducts or openings shall terminate on the exterior of the craft and outside of weather enclosures.