



SLOVENSKI STANDARD
oSIST prEN ISO 8099:2015
01-december-2015

Mala plovila - Sistemi za zadrževanje straniščnih odplak (ISO/DIS 8099:2015)

Small craft - Toilet waste retention systems (ISO/DIS 8099:2015)

Kleine Wasserfahrzeuge - Toilettenabfall-Sammelanlagen (ISO/DIS 8099:2015)

Petits navires - Systèmes de rétention des déchets des installations sanitaires (toilettes)
(ISO/DIS 8099:2015)

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ICS:

47.080

Čolni

Small craft

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en

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Small craft — Toilet waste retention systems

Petits navires — Systèmes de rétention des déchets des installations sanitaires (toilettes)

ICS: 47.080

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 8099 was prepared by Technical Committee ISO/TC 188, *Small craft*, together with CEN/BT/WG 69, *Small craft*.

This third edition cancels and replaces the second edition (ISO 8099:2000) which has been technically revised primarily as listed in 4.1, 4.2, 4.9 and 9.4.

FINAL STANDARD PREVIEW
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Small craft — Toilet waste retention systems

1 Scope

This International Standard specifies requirements for the design, construction, and installation of systems for temporary retention of sewage for subsequent disposal. It applies to small craft of hull length up to 24 m.

This standard does not address water treatment systems

2 Normative reference

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*.

ISO 9093-1, *Small craft — Seacocks and through-hull fittings — Part 1: Metallic*.

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

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

3 Terms and definitions

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

3.1

retention system

interconnected sanitation equipment including hoses, pipes, holding tank and fittings designed for use on board small craft to receive, retain, vent and dispose of sewage

3.2

sewage (black water)

human body wastes and the wastes, including flushing water, from toilets and other receptacles intended to receive or retain these wastes

3.3

accessible

capable of being reached for inspection, removal or maintenance without removal of the permanent craft structure

3.4

readily accessible

capable of being reached for operation, inspection or maintenance without removal of any parts of the craft structure or use of any tools

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3.5

portable holding tank

tank designed and intended to be removed from the craft for the disposal of its contents

3.6

holding tank

tank intended to receive and hold sewage from toilets and other receptacles for disposal at another time

4 General requirements

4.1 Any toilet in a retention system shall be connected solely to a holding tank system.

4.2 Craft with permanently installed holding tanks shall be fitted with a standard discharge connection as specified in Annex A to enable pipes of reception facilities to be connected with the craft discharge pipeline.

Any through-hull fittings for sewage shall be fitted with valves which are capable of being secured in the closed position.

4.3 The system shall be installed to prevent the emission of vapor and liquids within the craft.

4.4 The system shall be capable of operation throughout an ambient temperature range of + 1 °C to + 60 °C and shall withstand, when empty, an ambient temperature range of – 40 °C to + 60 °C.

4.5 The system shall be capable of operation, i.e. discharge of waste from the toilet or retention system, when the boat is heeled at least 20° to either side and trimmed at least 10° by bow or stern.

4.6 Back siphoning of the contents and escape of gas from the holding tank back through the toilet fixture shall be prevented up to a heel angle to either side of at least 30° for monohull sailing craft, 20° for other craft and a trimmed condition at the bow or stern of at least 10°.

4.7 Escape of sewage from the holding tank to the exterior of the craft shall be prevented when the boat is heeled to either side at least 30° for monohull sailing craft, 20° for other craft, at 90 % of tank capacity and to the interior of the craft under maximum anticipated conditions of heel or trim, i.e. 45° for monohull sailing craft, 30° for engine-driven craft and multihull sailing craft.

4.8 Electrical systems shall meet the electrical requirements of ISO 13297 and ISO 10133.

4.9 The permanently installed system including all tanks, connecting piping, hoses, and fittings, shall be tested to withstand a pressure of 20 kPa for a period of 5 min without leaking. The tank shall withstand a negative pressure of 20 kPa without permanent deformation.

5 Materials

Materials shall be resistant to the effects of the following:

- a) sewage;
- b) fresh, salt or brackish water with
 - impurities,
 - waste water from toilet systems;
 - oily bilge water;
- c) disinfectants, deodorants and antifreeze solutions recommended by the system manufacturer;

- d) household cleaning agents recommended by the system manufacturer;
- e) chemical compounds, in solid, liquid or gaseous form, likely to be generated by the operation of the system.

6 Plumbing System

6.1 Hoses and piping

Hoses and piping shall be suitable for use in sewage systems.

Connecting hoses and piping shall be securely fastened in position to prevent damage by abrasion or vibration.

Piping or hose between the toilet and holding tank, and between the tank and the pump-out fitting, shall be as short as practicable and its inner surface shall

- be smooth and without convolutions to permit free flow of sewage;
- have an inside diameter in conformity with the toilet manufacturer's recommendations; or have a minimum inside diameter of 38 mm, if no recommendations are provided.

6.2 Seacock fitting

Retention systems with the possibility of overboard discharge of sewage from the tank to the sea shall be fitted with a seacock at the through-hull fitting. Any seacock used for overboard discharge shall be in accordance with ISO 9093-1 and shall be capable of being secured in the closed position.

7 Vent System

7.1 Venting of gases

7.1.1 The system shall provide for venting of gases within the system to the exterior of the craft at heel angles up to 20° at 90 % of tank capacity.

7.1.2 Inside diameter of fittings

The inside diameter of fittings to which vent piping is connected shall not be less than 75 % of the inside diameter of the piping with a length of less than six times the inside diameter of the fitting.

7.1.3 Prevention of clogging — Pressure resistance

The design and construction of the vent system shall minimize clogging by either the contents of the tank or as a result of weather conditions. The vent shall be capable of resisting, without damage, a negative pressure of 20 kPa.

7.1.4 Flow area

The minimum flow area through vent screens and equivalent flow resistance of any filters installed in the vent system shall be not less than the smallest flow area in either the vent pipe or its fittings.

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7.2 Venting of Rigid tanks**7.2.1 Capacity of less than 400 litres**

The minimum inside diameter of the vent pipe shall be 19 mm, or a vent pipe of inside diameter not less than 16 mm may be used if the tank is fitted with an automatic (vacuum operated) or manual relief valve with a minimum combined area of 1 100 mm².

7.2.2 Capacity of 400 litres and greater

The minimum inside diameter of the vent pipe shall be 38 mm, or, if multiple vent pipes are used, their inside diameter shall be at least 19 mm and the combined cross-sectional flow area shall be at least equivalent to that of a single vent pipe with an area of 1 100 mm². As an alternative, a vent pipe of inside diameter not less than 16 mm may be used if the tank is fitted with an automatic (vacuum operated) or manual relief valve with a minimum combined area of at least 1 100 mm².

If a manual relief valve is fitted, a sign shall be installed, in symbols or language acceptable in the country of use, located in the vicinity of the pump-out fitting, indicating that the relief valve must be opened prior to pump out.

7.2.3 Venting of Flexible tanks

Flexible (collapsible) tanks shall have at least one vent of inside diameter minimum 16 mm.

8 Holding Tanks

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8.1 General Requirements**8.1.1 Fastening**

The holding tank shall be securely fastened and located independently of any connecting piping.

8.1.2 Indication of contents level

As a minimum the level of holding-tank contents shall be observable when the holding tank is 3/4 full by volume, when the tank is viewed directly while installed in a readily accessible location, or indicated by another means.

8.1.3 Accessibility of fittings and connections

Holding-tank fittings and connections shall be accessible for inspection and maintenance.

8.1.4 Access opening

Holding tanks of capacity greater than 40 litres shall have an accessible sealable, (i.e. vapour and liquid tight) minimum opening of 75 mm diameter or smallest dimension to the holding tank interior for flushing, cleaning and maintenance.

8.1.5 Tank walls

Holding tanks shall not have common walls, tops or bottoms with fuel and potable-water tanks.

8.2 Requirements for permanently installed holding tanks

8.2.1 The tank, as designed, shall provide removal of at least 90 % of the contents of the holding tank through the pump-out fitting.