

SLOVENSKI STANDARD
oSIST prEN ISO 8849:2019
01-maj-2019

Mala plovila - Električne kalužne črpalke (ISO/DIS 8849:2019)

Small craft - Electrically operated bilge pumps (ISO/DIS 8849:2019)

Kleine Wasserfahrzeuge - Elektrisch angetriebene Bilgepumpen (ISO/DIS 8849:2019)

Petits navires - Pompes de cale à moteur électrique (ISO/DIS 8849:2019)

Ta slovenski standard je istoveten z: prEN ISO 8849

[kSIST FprEN ISO 8849:2020](https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020)

<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020>

ICS:

47.020.60	Električna oprema ladij in konstrukcij na morju	Electrical equipment of ships and of marine structures
47.080	Čolni	Small craft

oSIST prEN ISO 8849:2019

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[kSIST FprEN ISO 8849:2020](#)

<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020>

DRAFT INTERNATIONAL STANDARD

ISO/DIS 8849

ISO/TC 188

Secretariat: SIS

Voting begins on:
2019-03-22Voting terminates on:
2019-06-14

Small craft — Electrically operated bilge pumps

ICS: 47.080

iTeh STANDARD PREVIEW (standards.iteh.ai)

[kSIST FprEN ISO 8849:2020](https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020)<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING



Reference number
ISO/DIS 8849:2019(E)

© ISO 2019

iTeh STANDARD PREVIEW (standards.iteh.ai)

[kSIST FprEN ISO 8849:2020
https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020](https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General requirements	2
5 Electrical requirements	3
6 Marking	4

iTeh STANDARD PREVIEW (standards.iteh.ai)

[kSIST FprEN ISO 8849:2020](https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020)

<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020>

ISO/DIS 8849:2019(E)

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).

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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 8849:2003), which has been technically revised.

<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020>

Small craft — Electrically operated bilge pumps

1 Scope

This document specifies requirements for electrically operated bilge pumps intended for use in removing bilge water. It applies to electrically operated bilge pumps rated for less than 50 V direct current d.c. or 300 V or less alternating current.

This International Standard does not cover pumps intended for damage control.

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, *Small craft — Electrical devices — Protection against ignition of surrounding flammable gases*

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

ISO 13297, *Small Craft — Electrical Systems — Extra-low-voltage a.c. installations*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

3 Terms and definitions

kSIST prEN ISO 8849:2020

<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-106748240324/iso-8849-2019>

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 <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

automatic pump

pump that is equipped with a sensing means that activates and deactivates the pump at predetermined liquid levels

3.2

ignition-protected device

device designed and constructed to give protection against ignition of surrounding flammable gases as outlined in ISO 8846

3.3

nominal voltages

voltages that are commonly used on small craft with direct current, such as 6 V, 12 V and 24 V and alternating current 110/120 or 230/240 V

3.4

non-submersible pump

pump designed to be operated above water

3.5

submersible pump

pump designed to be operated completely immersed in water

ISO/DIS 8849:2019(E)**3.6****design voltage**

113 % of nominal voltage

3.7**craft**

Small craft – Recreational boat, and other watercraft using similar equipment, of up to 24 meters length of hull (LH)

3.8**critical bilge-water level**

level at which bilge water will contact metallic fuel tanks, couplings, engine pans, non-submersible machinery, or non-watertight electrical circuits and connections, with the craft in the static floating position or in normal operation

4 General requirements

4.1 Bilge pumps shall be designed to operate for a continuous 24-hour period at 87,5 % of nominal voltage, up to their design voltage at the point within the range of performance recommended for the pump that results in the highest power consumption.

4.2 Bilge pumps and devices used to convert bilge pumps to automatic operation installed in compartments which contain explosive vapour and gasses shall be ignition protected in accordance with ISO 8846 and shall meet the electrical requirements of ISO 10133 or ISO 13297.

4.3 Bilge pumps shall be rated in litres of water flow per minute or per hour at nominal voltage, at static pressures of 0 kPa, 10 kPa and 20 kPa, i.e. heads of 0 m, 1 m and 2 m, with 1,5 times the lift in a smooth-bore hose length of an inside diameter equal to the pump-outlet outside diameter fixed to the pump-outlet.

<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-pr-en-iso-8849-2020>

The pump rating and capacities shall be stated in the installation and operating instructions provided with the pump.

The pump rating shall include the maximum output pressure and lift at which the pump ceases operation, i.e. the discharge of water.

4.4 Bilge pumps shall be provided with means of fastening them to the craft independently and securely.

4.5 Materials used in the construction of bilge pumps, which can be expected to come in contact with sea water, shall be

- selected or coated to be resistant to corrosion;
- galvanically compatible; and
- resistant to deterioration by bilge-cleaning agents and intermittent exposure to petrol (gasoline), oil and diesel fuel.

4.6 Submersible pumps shall be provided with a strainer or other means of preventing debris entering the pump inlet. Inlet strainers and screens shall be designed such that they can be cleaned.

4.7 Installation and operating instructions shall be available for each bilge pump. An electrical diagram shall be provided. It shall identify each conductor and shall include the proper location of the control switch(es) in the circuit and the bonding connection, if applicable. The recommended overcurrent protection for non-integrally protected bilge pumps shall be stated.

4.8 Centrifugal and axial flow pumps shall be capable of operating dry at their design voltage for at least 7 h at their nominal voltage without creating a fire hazard. Alternatively, a means integral with the pumps shall be provided to shut the pump off automatically to prevent a fire hazard.

4.9 Positive or semi-positive displacement pumps, i.e. those in which the impeller may be in continuous contact with the housing when operating dry, shall be capable of operating dry for at least 5 min without damage to the impeller or housing and for at least 1 h without creating a fire hazard. Alternatively, a means integral with the pumps shall be provided to shut the pump off automatically to prevent a fire hazard. A label shall be provided cautioning against operating the pump dry for more than 1 min.

5 Electrical requirements

5.1 Bilge pumps shall be of the two-wire type or three-wire type if for manual or automatic operation, with both power (positive) and return (negative) conductors or live conductors insulated from the motor housing and the pump housing.

5.2 Conductors used for connection to the power supply shall be of stranded copper meeting the size, current capacity and insulation requirements of ISO 10133 or ISO 13297.

5.3 Submersible pumps shall have watertight electrical connections, IP 67 in accordance with IEC 60529.

NOTE The use of a length of watertight electrical cable sealed at the pump connection is recommended, so that connections to the power supply may be made above the critical bilge-water level.

5.4 Metallic parts of the pump housing that could be exposed to contact with bilge water and may become a source of stray current leakage shall have provisions for bonding conductor connections.

Exception: pumps designed with a double-insulated electrical system, requiring a break in two distinct insulation systems before electrical leakage can reach exposed metallic parts, do not require a bonding connection.

5.5 Bilge pumps shall be protected against continuously locked rotor conditions by

- integral overcurrent protection, or
- overcurrent protection in the circuit of a size to protect the bilge-pump motor, or
- being capable of sustaining operation with a locked rotor for 7 h without generating surface temperatures in excess of 150 °C, at an ambient temperature of 60 °C, and without evidence of charring, burning or melting
- no temperature shall exceed 150 °C when operating at 120 % of nominal voltage in an ambient temperature of 60 °C for seven hours.

5.6 DC Bilge pumps shall be capable of withstanding a d.c. voltage of 500 V for 1 min without leakage in excess of 1 mA. The test voltage shall be applied between the current-carrying parts and the non-current-carrying metal parts. If the pump is internally earthed, the earth connection shall be broken in order to carry out this test.

AC bilge pumps shall be fitted with or supplied by a branch circuit protected by a earth leakage circuit breaker.

5.7 Bilge pumps designed for automatic operation shall be provided with an override switch to permit manual operation if the automatic operation fails.

ISO/DIS 8849:2019(E)**6 Marking**

Each bilge pump shall be marked as follows by a name-plate or other equally permanent means with at least the following information:

- manufacturer's name or identification;
- model and/or serial number;
- electrical rating in volts and amperes;
- ISO 8849;
- output rating at 10 kPa (1 m lift) (see [4.3](#));
- ISO 8846 MARINE (if applicable).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[kSIST FprEN ISO 8849:2020](https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020)
<https://standards.iteh.ai/catalog/standards/sist/15fe450f-9a10-45f8-8ad6-180d7f08ea6e/ksist-fpren-iso-8849-2020>