SLOVENSKI STANDARD
SIST EN ISO 15749-1:2004

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Ladje in pomorska tehnologija ï Sistemi za odvajanje vode/odplak z ladij in struktur na morju ï 1. del: Naļ rtovanje sanitarnega sistema (ISO 15749-1:2004)

Ships and marine technology - Drainage systems on ships and marine structures - Part 1: Sanitary drainage-system design (ISO 15749-1:2004)

Schiffe und Meerestechnik - Entwässerungsanlagen auf Schiffen und Seebauwerken - Teil 1: Sanitär-Entwässerung, Auslegung der Anlage (ISO 15749:2004)

Navires et technologie maritime - Installations de drainage sur navires et structures maritimes - Partie 1: Conception des systemes d'écoulement sanitaires (ISO 15749-1:2004)

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English version

Ships and marine technology - Drainage systems on ships and marine structures - Part 1: Sanitary drainage-system design (ISO 15749-1:2004)

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This European Standard was approved by CEN on 16 April 2004.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Foreword

This document (EN ISO 15749-1:2004) has been prepared by Technical Committee ISO/TC 8 "Ships and marine technology" in collaboration with Technical Committee CEN/TC 300 "Sea-going vessels and marine technology", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2004, and conflicting national standards shall be withdrawn at the latest by November 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 15749-1:2004 has been approved by CEN as EN ISO 15749-1:2004 without any modifications.

INTERNATIONAL STANDARD

ISO 15749-1

First edition
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Ships and marine technology — Drainage systems on ships and marine structures —

Part 1: Sanitary drainage-system design

Navires et technologie maritime — Installations de drainage sur navires et structures maritimes —

Partie 1: Conception des systèmes d'écoulement sanitaires

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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 15749-1 was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

ISO 15749 consists of the following parts, under the general title *Ships and marine technology — Drainage systems on ships and marine structures*:

— *Part 1: Sanitary drainage-system design*

— *Part 2: Sanitary drainage, drain piping for gravity systems*

— *Part 3: Sanitary drainage, drain piping for vacuum systems*

— *Part 4: Sanitary drainage, sewage disposal pipes*

— *Part 5: Drainage of decks, cargo spaces and swimming pools*

Ships and marine technology — Drainage systems on ships and marine structures —

Part 1: Sanitary drainage-system design

1 Scope

This part of ISO 15749 is valid, in conjunction with ISO 15749-2 to ISO 15749-4, for planning and designing drainage systems which evacuate wastewater from accommodation and commissary areas (sanitary drainage) on ships and marine structures.

Drainage of weather decks, cargo holds and swimming pools is covered by ISO 15749-5.

This series of standards takes into consideration the basic regulations and minimum requirements concerning hygienic requirements and the protection of the marine environment.

This part of ISO 15749 does not apply to pipe systems carrying oily, chemically contaminated wastewater capable of forming flammable gas/oxygen mixtures.

2 Normative references

The following referenced documents are indispensable for the application 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.

IMO Publication MARPOL, *Protocol of 1978 relating to the international convention for the prevention of pollution from ships 1973, Annex IV/Regulations for the prevention of pollution by sewage from ships* [1)]

IMO Publication MEPC.2 (VI), *Recommendation on international effluent standards and guidelines for performance tests for sewage treatment plants, January 1977* [1)]

IMO Publication MSC/Circ. 648, *Annex Guidelines for the operation, inspection and maintenance of ship sewage systems* [1)]

IMO Resolution A.753 (18), *Guidelines for the application of plastic pipes on ships*

ISO/R 538, *Conventional signs to be used in the schemes for the installations of pipeline systems in ships*

ISO 727-1, *Fittings made from unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) or acrylonitrile/butadiene/styrene (ABS) with plain sockets for pipes under pressure — Part 1: Metric series*

ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*

1) Published by International Maritime Organization, London.
Available from IMO Secretariat, Publications Section, 101-104 Picadilly, London W1V, United Kingdom.

ISO 1964, *Shipbuilding — Indication of details on the general arrangement plans on ships*

ISO 4067-1, *Technical drawings — Installations — Part 1: Graphical symbols for plumbing, heating, ventilation and ducting*

ISO 4067-2, *Building and civil engineering drawings — Installations — Part 2: Simplified representation of sanitary appliances*

ISO 10628, *Flow diagrams for process plants — General rules*

ISO 14617-3, *Graphical symbols for diagrams — Part 3: Connections and related devices*

ISO 15749-2, *Ships and marine technology — Drainage systems on ships and marine structures — Part 2: Sanitary drainage, drain piping for gravity systems*

ISO 15749-3, *Ships and marine technology — Drainage systems on ships and marine structures — Part 3: Sanitary drainage,drain piping for vacuum systems*

ISO 15749-4, *Ships and marine technology — Drainage systems on ships and marine structures — Part 4: Sanitary drainage, sewage disposal pipes*

ISO 15749-5, *Ships and marine technology — Drainage systems on ships and marine structures — Part 5: Drainage of decks, cargo spaces and swimming pools*

3 Terms and definitions

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

3.1
wastewater
off-running water which has undergone change due to use, as for instance sewage (contaminated water), water from precipitation, seawater and condensation water that has reached the drain lines.

NOTE 1 With this type of wastewater, a distinction is made between grey water and sewage.

NOTE 2 For the classification of wastewater in accordance with origin, see Table 1 in Clause 4.

3.2
grey water
wastewater to be disposed of, excluding sewage

3.3
sewage
wastewater from water closets, urinals and bidets, including additives; medical areas (pharmacy, hospital, etc.) and from washing basins in those areas, bath tubs and water discharges; spaces housing living animals and other types of wastewater, if mixed with contaminated water already mentioned.

NOTE The definition of 'sewage' is in accordance with the definition of Annex IV of MARPOL 73/78.

3.4
pipes in sanitary drainage systems

3.4.1
drain line
general term for all pipes carrying wastewater (gravity or vacuum system) of the sanitary drainage system leading from the drain to the collector tank or sewage treatment plant

3.4.1.1
connecting line
⟨gravity system⟩ a short pipe directly linking the drain of the drained unit and the odour seal

3.4.1.2
connecting line
⟨vacuum system⟩ a short pipe directly linking the drain of the drained unit and the vacuum control valve

3.4.1.3
branch line

3.4.1.3.1
single branch
⟨gravity system⟩ part of the drain line which connects the odour seal and a line continuing, for instance, to a collecting branch

3.4.1.3.2
single branch
⟨vacuum system⟩ part of the drain line which connects either a sewage unit with an integrated vacuum mechanism or a vacuum control valve to a line continuing, for instance, to a collecting branch

3.4.1.3.3
collecting branch
line collecting the wastewater of several single branches and carrying them to a line continuing, for instance, to a gravity delivery line or a manifold

3.4.1.3.4
riser branch
a single or collective branch leading vertically upwards

NOTE Only in vacuum plants.

3.4.1.4
gravity delivery line
a vertical line with warpage, if necessary, passing through one or more decks, feeding the wastewater to a manifold

NOTE Only in gravity systems.

3.4.1.5
manifold
a line into which the wastewater from gravity and branch lines is fed

3.4.1.6
main sewer
a line into which wastewater from manifolds is fed and carried to a sewage treatment plant or a collector tank

NOTE For vacuum systems, the main sewer may also be configured as a valve manifold.

3.4.1.7
valve manifold
a short length of pipe closed at both ends with connections for drain lines (e.g. manifolds), including connections for lines to the vacuum generation plant and with pressure gauges and pressure control switches connected, as well as a connection for flushing

NOTE Only in vacuum systems.