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Ships and marine technology — Sea-going vessels — Windlasses and anchor capstans

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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).

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

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 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*, in collaboration with Technical Committee ISO/TC 4, *Rolling bearings*.

This fourth edition cancels and replaces the third edition (ISO 4568:2006), which has been technically revised.

The main changes compared to the previous edition are:

— the definitions of working load (3.1), nominal size (3.2) and overload pull (3.3) have been revised;

— the definition of nominal recovery speed (former 3.5 in the previous edition) has been deleted;

— new definitions for windlass (3.5), double cable-lifter windlass with connection shaft (3.10) and control braking system (3.11) have been added;

— requirements have been added on: the mooring winch, in 4.4 and 5.4; the design of the cable lifter, in 4.6.2.2; and the electric motor, in 4.11.2 and 4.11.3;

— the strength requirements have been updated in 4.5;

— test methods have been added in 6.3 to 6.9.

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.

Ships and marine technology — Sea-going vessels — Windlasses and anchor capstans

1 Scope

This document specifies requirements for the design, construction, safety, performance and acceptance testing of windlasses and anchor capstans.

This document is applicable to windlasses and anchor capstans of sea-going vessels, which have an electric, hydraulic, pneumatic or external drive, of the following types:

— symmetrical double cable-lifter windlasses (type 1);

— single cable-lifter windlasses (type 2);

— single cable-lifter windlass units (types 3 and 4);

— anchor capstans (type 5);

— double cable-lifter windlasses with connecting shaft (type 6).

For combined windlasses/mooring winches, ISO 3730 is applicable in addition to this document.

NOTE Attention is drawn to the requirements of relevant Classification Societies or the government of the state whose flag the ship is entitled to fly.

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 1704, *Ships and marine technology — Stud-link anchor chains*

ISO 3730, *Shipbuilding and marine structures — Mooring winches*

ISO 3828, *Shipbuilding and marine structures — Deck machinery — Vocabulary and symbols*

ISO 4413, *Hydraulic fluid power — General rules and safety requirements for systems and their components*

ISO 6482, *Shipbuilding — Deck machinery — Warping end profiles*

ISO 7825, *Shipbuilding — Deck machinery — General requirements*

IEC 60092 (all parts), *Electrical installations in ships*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3828 and the following apply.

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

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

— IEC Electropedia: available at https://www.electropedia.org

3.1
working load
F_w
<windlass or anchor capstan> continuous working load that the prime mover of the windlass or anchor capstan is able to apply for 30 min, derived from the chain cable diameter and the chain cable grade

3.2
nominal size
<windlass or anchor capstan> size expressed in terms of chain cable diameter, in millimetres, grade of chain cable, holding load and maximum anchorage depth

Note 1 to entry: When the maximum anchorage depth is below 82,5 m, it is not expressed.

EXAMPLE 100/3/45- 100 m is the size designation of a windlass for a 100 mm diameter chain cable of IACS [1] Grade 3, with a holding load of 45 % of the breaking load of the chain cable, and a maximum anchorage depth of 100 m.

3.3
overload pull
short-time overload capacity necessary for the windlass or anchor capstan to break ground, provided by the windlass or anchor capstan prime mover

3.4
holding load
maximum static load on the chain cable that the cable-lifter brake can withstand

3.5
windlass
machine in which the cable-lifter is mounted on a horizontal shaft

3.6
symmetrical double cable-lifter windlass (type 1)
fully powered windlass with two symmetrical cable-lifters

Note 1 to entry: For the purposes of designation, it corresponds to Type 1, see Clause 7 and Figure 1.

3.7
single cable-lifter windlass (type 2)
single fully powered windlass with one cable-lifter

Note 1 to entry: For the purposes of designation, it corresponds to Type 2, see Clause 7 and Figure 2.

3.8
single cable-lifter windlass unit (types 3 and 4)
windlass unit in which one cable-lifter is provided with an external power source

Note 1 to entry: For the purposes of designation, it corresponds to Types 3 and 4, see Clause 7 and Figures 3 and 4.

3.9
anchor capstan (type 5)
machine in which the cable-lifter is mounted on a vertical shaft

Note 1 to entry: See Figure 5 and ISO 3828 for a complete definition.

1) International Association of Classification Societies.