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ISO TC 8/SC 4/WG 2

Secretariat: SAC

Ships and marine technology — Piling barge winches

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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~~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~~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~~www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee 8, *Ships and marine technology*, Subcommittee 4, *Outfitting and deck machinery*.

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~~www.iso.org/members.html.

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Ships and marine technology — Piling barge winches

1 Scope

This document specifies the requirements for the design, operation, performance and acceptance test of the hydraulic or electric winches in piling barge winch systems.

This document specifies the winches required to operate the pile and the pile hammer during piling of the piling barge, mainly including the suspending pile winch, hammer start winch, suspending hammer winch and suspending hose winch.

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 2408:2017, *Steel wire ropes — Requirements*

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 7825, *Shipbuilding — Deck machinery — General requirements*

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

IEC 60529, *Degree 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~~https://www.iso.org/obp

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

3.1
suspending pile winch
hauling or lifting device used to lift the piles to the piling frame during piling of the piling barge

Note 1 to entry: piling frame is high frame for installing the piles during piling of the piling barge.

3.2
hammer start winch
hauling or lifting device used to start the pile hammer

3.3

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suspending hammer winch
hauling or lifting device used to lift and lower the pile hammer during piling of the piling barge

3.4
suspending hose winch
hauling or lifting device used to haul in or pay out high-pressure hose or cable during piling of the piling barge

3.5
piling barge winch
general term for the *suspending pile winch* (3.1), *hammer start winch* (3.2), *suspending hammer winch* (3.3), and *suspending hose winch* (3.4) required to operate the pile and the pile hammer during piling of the piling barge

3.6
rated load
load the *piling barge winch* (3.5) can withstand when hauling in the cables at rated lifting speed

3.7
rated speed
maximum speed the *piling barge winch* (3.5) can reach when hauling in the cables at the *rated load* (3.6)

3.8
brake load
load the brake for the *piling barge winch* (3.5) can withstand

3.9
expansion clutch
clutch used between the *suspending hammer winch* (3.3) drum and the drive to allow for clutch engagement and disengagement by clamping or separating the friction band and the inner face of the brake hub

4 Types

According to the structure, winches can be divided into five types as ~~follows. See~~described below and as shown in Figure ~~ ~~1.

a) ~~right~~ Right-hand winch

The drive for the drum is on the right-hand side of the drum, in relation to an observer situated on the side of the power supply or controller.

b) ~~left~~ Left-hand winch

The drive for the drum is on the left-hand side of the drum, in relation to an observer situated on the side of the power supply or controller.

c) ~~central~~ Central model winch

The drive for the drum is located between two drums.

d) ~~single~~ Single drum winch

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One drive powers one drum.

e) ~~double~~ Double drum winch

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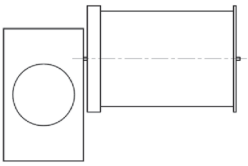
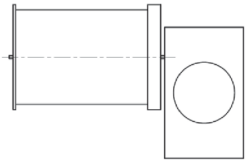
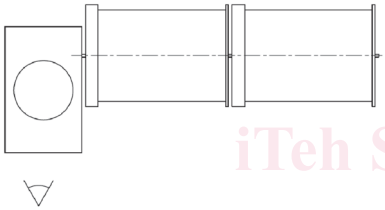
One drive powers two drums.



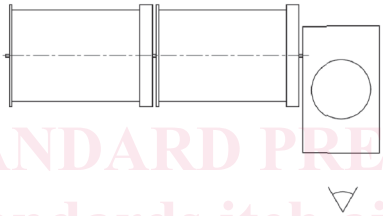
a) Left-hand single drum winch



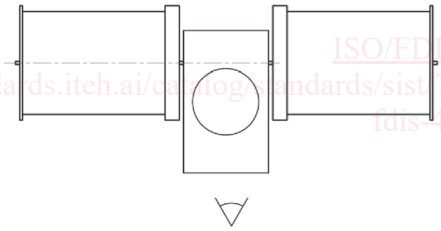
b) Right-hand single drum winch



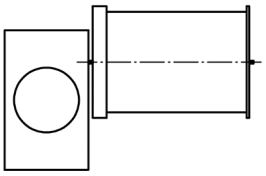
c) Left-hand double drum winch

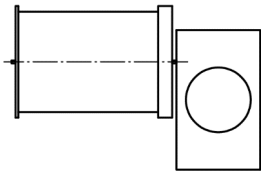


d) Right-hand double drum winch



e) Central model double drum winch





a) Left-hand single drum winch

b) Right-hand single drum winch

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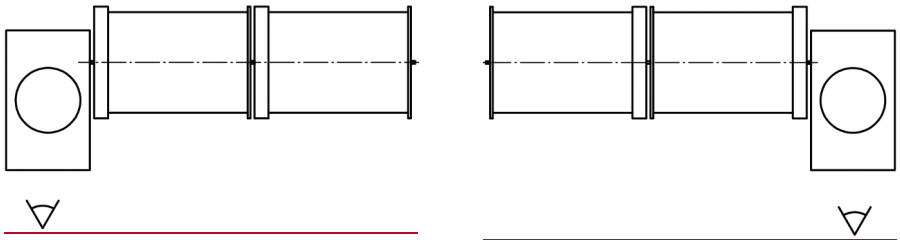
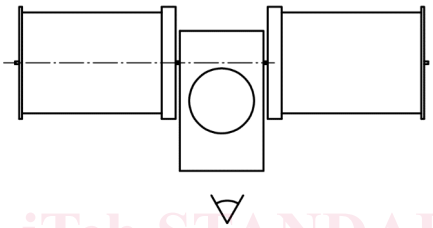


c) Left-hand double drum winch

d) Right-hand double drum winch



e) Central model double drum winch

Figure 1 — The diagram for types of winches

5 Design and operation

5.1 General requirements

Piling barge winches shall conform to the requirements in ISO 7825 and the specific requirements listed in 5.2 to 5.8. Attention is drawn to the existence of safety regulations in certain countries and organizations affecting piling barge winch controls.

5.2 Material stress

The winch manufacturer shall be responsible for determining the strength requirements of the component parts of the winch to withstand the required load under various working conditions.

5.3 Strength requirements

5.3.1 Rated load

The calculated stress of any affected part, based on simple strength theory, shall not be greater than 0,4 times the lower yield strength (R_{eL}) or the 0,2 % proof strength, non-proportional extension ($R_{e0,2}$) of the part material.

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