ISO/FDIS-4862:2023(E) 2023-01-1002-07 ISO TC 8/SC 4/WG 2 Secretariat: SAC Ships and marine technology — Winches for trailing suction hopper dredger

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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/directiveswww.iso.org/directiveswww.iso.org/directives.

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This document was prepared by Technical Committee 8, *Ships and marine technology*, Subcommittee 4, 02–4602–668 *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 <u>www.iso.org/members.html</u>.

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FINAL DRAFT INTERNATIONAL STANDARD

ISO/FDIS 4862:2023(E)

Ships and marine technology — Winches for trailing suction hopper dredger

1 Scope

This document specifies the requirements for the design, operation, performance and acceptance test of the hydraulic or electric winches for trailing suction hopper dredgers.

This document specifies the winches required to operate the suction pipe during dredging of the trailing suction hopper dredger winch, mainly including the draghead winch, gimbal winch and trunnion winch.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their contents 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<mark>:2017, Steel wire ropes — Requirements ______</mark>

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 20289/ISO-1015-480

ISO 8384, Ships and marine technology — Dredgers — Vocabulary

ISO 8385, Ships and marine technology — Dredgers — Classification

IEC 60092 (all parts), Electrical installations in ships

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

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 3828, ISO 8384, ISO 8385 and the following apply.

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

- ISO Online browsing platform: available at <u>https://www.iso.org/obp</u>https://www.iso.org/obp
- IEC Electropedia: available at <u>https://www.electropedia.org/</u>https://www.electropedia.org/

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3.1 drack and winch			
draghead winch hauling or lifting device installed near the fore of the suction pipe (draghead), used for hoisting and			
lowering the fore of the suction pipe			
towering the fore of the succion pipe			
3.2			
gimbal winch			
hauling or lifting device installed near the middle of the suction pipe (gimbal joint), used for hoisting			
and lowering the middle of the suction pipe			
3.3			
trunnion winch			
hauling or lifting device installed near the trunnion of the suction pipe, used for hoisting and lowering			
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suction pipe winch		Λ	Formatted: Font: Not Italic
general term for the <i>draghead winch</i> (3.1), <i>gimbal winch</i> (3.2) and <i>trunnion winch</i> (3.3)	K	-1	Formatted: cite_sec
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maximum speed the suction pipe winch (3.4) can reach when hauling in the cables at the rated load (3.5)		Å	Formatted: cite_sec
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a) right <u>Right</u> -hand winch	۲	ļ	+ 198.45 pt, Left
The drive for the drum is on the right-hand side of the drum, in relation to an observer situated on the	_	1	Formatted: Body Text, Don't adjust space between Latin
side of the power supply or controller.			and Asian text, Don't adjust space between Asian text and numbers
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b) left _Left-hand winch	-		Latin and Asian text, Don't adjust space between Asian
The drive for the drum is on the left-hand side of the drum, in relation to an observer situated on the	κ.		text and numbers, Tab stops: 19.85 pt, Left + 39.7 pt, Left + 59.55 pt, Left + 79.4 pt, Left + 99.25 pt, Left + 119.05
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5.3.2 Maximum load		
The calculated stress of any affected part shall not be greater than 0,9-times the lower yield strength ($R_{eL} R_{eL}$) or the 0,2_% proof strength, non-proportional extension ($R_{e0,2} R_{e0,2}$) of the part material.	F	ield Code Changed
5.4 Operating device		
5.4.1 -The direction of motion of the operating devices shall be such that the rope is hauled-in by clockwise movement at a hand-wheel or crank handle or alternatively, movement of a hand-lever towards the operator, vice versa.	5 L	formatted: Tab stops: 19.85 pt, Left + 39.7 pt, Left + 9.55 pt, Left + 79.4 pt, Left + 99.25 pt, Left + 119.05 pt, eft + 138.9 pt, Left + 158.75 pt, Left + 178.6 pt, Left + 98.45 pt, Left
5.4.2 -The direction of motion of the operating devices shall be clearly and permanently marked.	_	
5.4.3 -Whatever the form of motive power, the operating hand-wheel or crank handle shall, when under manual control, be arranged to return to the braking or stop position automatically.		
5.5 Brake device		
5.5.1 -The suction pipe winch shall be fitted with an automatic braking device which operates when bringing the operating device to the stop or braking position, and also when there is no power on the winch.	5 L	ormatted: Tab stops: 19.85 pt, Left + 39.7 pt, Left + 9.55 pt, Left + 79.4 pt, Left + 99.25 pt, Left + 119.05 pt, eft + 138.9 pt, Left + 158.75 pt, Left + 178.6 pt, Left + 98.45 pt, Left
5.5.2 -The braking device shall be capable of effectively braking and supporting not less than the maximum load.	E	
5.6 Drum design (standards.iteh.ai)		
5.6.1 Design reference steel wire rope ISO/FDIS 4862		
5.6.1 Design reference steel wire rope	5 L	ormatted: Tab stops: 19.85 pt, Left + 39.7 pt, Left + 9.55 pt, Left + 79.4 pt, Left + 99.25 pt, Left + 119.05 pt, eft + 138.9 pt, Left + 158.75 pt, Left + 178.6 pt, Left + 98.45 pt, Left
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5.6.5 Drum flange height

Under any working condition, the height of flange beyond the outer layer of rope shall not be less than 2,5-times the diameter of the rope.

5.7 Drive device

5.7.1 -Electrical drives and control equipment shall conform to the requirement of the IEC 60092 series. Deck-mounted enclosures shall conform to IP56, as specified in IEC 60529, or degrees of protection in line with <u>the</u> environment for installation and use of equipment.

- **5.7.2** Hydraulic drive and control equipment shall conform to the requirements of ISO 4413.
- **5.7.3** -The prime mover of the suction pipe winch shall meet the following conditions:
- a)- the suction pipe winch shall be driven with an independent prime mover, and be able to control the veering and speed of the drum-<u>:</u>
- b) -it shall have the capacity to run for 30-min continuously under rated load at nominal speed.

5.8 Auxiliary device

The suction pipe winch shall be fitted with a device that can ensure on-loaded cables are paid out at a steady and controllable speed.

6 Performance

The main specifications and performance parameters of suction pipe winches are shown in Table_1.

Table-1 — Specifications and performance parameters

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Rated	A series	-	-	-	-	6	6	6	6	6	6	6	6			Formatted: Font: Bold
speed	B series	12	12	12	12	12	12	12	12	12	12	12	12			
m/min	C series	18	18	18	18	18	18	18	18	-	-	-	-			

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