
**Large yachts — Deck equipment —
Anchoring equipments**

Grands yachts — Équipement de pont — Mouillage

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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 12, *Large yachts*.

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Large yachts — Deck equipment — Anchoring equipments

1 Scope

This International Standard defines the requirements for layout, design, and installation for large yacht anchoring equipment.

For the purpose of this International Standard, large yachts are of L_H (as defined according to ISO 8666:2002) equal to or longer than 24 m, in use for sport or pleasure and commercial operations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 3828, *Shipbuilding and marine structures — Deck machinery — Vocabulary and symbols*

ISO 4568, *Shipbuilding — Sea-going vessels — Windlasses and anchor capstans*

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

ISO 8666:2002, *Small craft — Principal data*

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3 Terms and definitions

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

3.1

working load of the windlass

F_W

working load, derived from the chain cable diameter and the chain cable grade, measured at the cable lifter

3.2

nominal size of the windlass

NS_W

size expressed in terms of chain cable diameter, in millimetres, grade of chain cable, and pull capability

EXAMPLE 100/3/25 is the size designation of a windlass for 100 mm diameter chain cable of IACS (International Association of Classification Societies) Grade 3, with a holding load of 25 % of the breaking load of the chain cable.

3.3

anchor nominal weight

W_A

mass of a single anchor in kg

**3.4
nominal size of chain stopper**

NSCS

size expressed in terms of chain cable diameter in millimetres, grade of chain and holding load required at brake

EXAMPLE 100/3/85 is the size designation of a chain stopper for 100 mm diameter chain cable of IACS Grade 3, with a holding load of 85 % of breaking load of the chain cable.

**3.5
equipment number**

EN

factor anchor and chain sizes to be based on

Note 1 to entry: The EN is defined by classification society rules.

**3.6
sloping angle**

α

angle between the vertical axis and the line between lifter connecting the chain cable outlet to chain-locker

Note 1 to entry: See [Figure 1](#).

**3.7
winding angle**

β

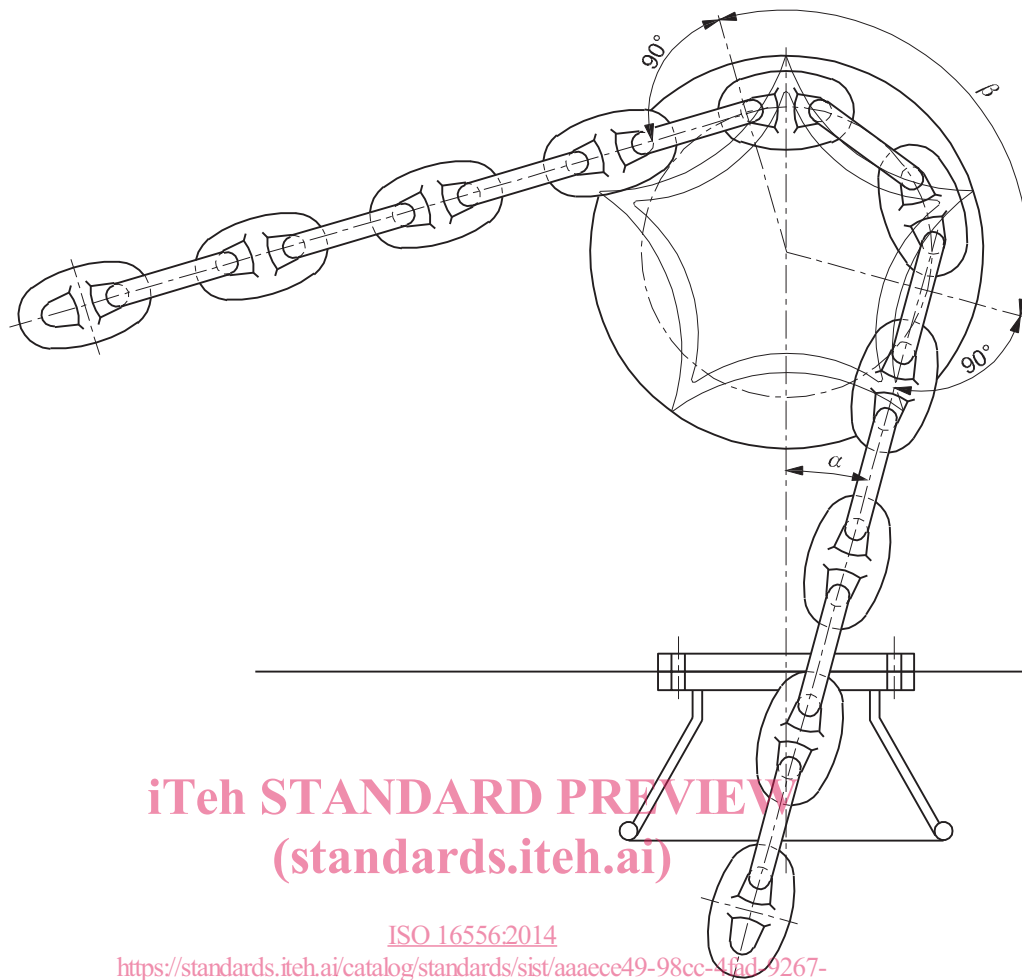
angle describing the circular arc on which the chain is engaged on the cable lifter, set between two lines originating from the windlass centre of rotational axis to a point perpendicular to the direction of the incoming and outgoing chain

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Note 1 to entry: See [Figure 1](#). <https://standards.iteh.ai/catalog/standards/sist/aaaece49-98cc-4fad-9267-504e2e931431/iso-16556-2014>



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Figure 1 — Winding angle, β — Sloping angle, α

3.8

anchor chain

chain as specified by ISO 1704

Note 1 to entry: Studless chains can be used provided they are of equal strength to the stud link chain, as defined by equipment number.

3.9

free-wheeling condition

condition where a declutched cable lifter is able to rotate and release cable under action of anchor and/or chain weight

3.10

deviation angle of chain

γ

angle between the centre line of chain leaving cable lifter and a plane perpendicular to main axis of the windlass

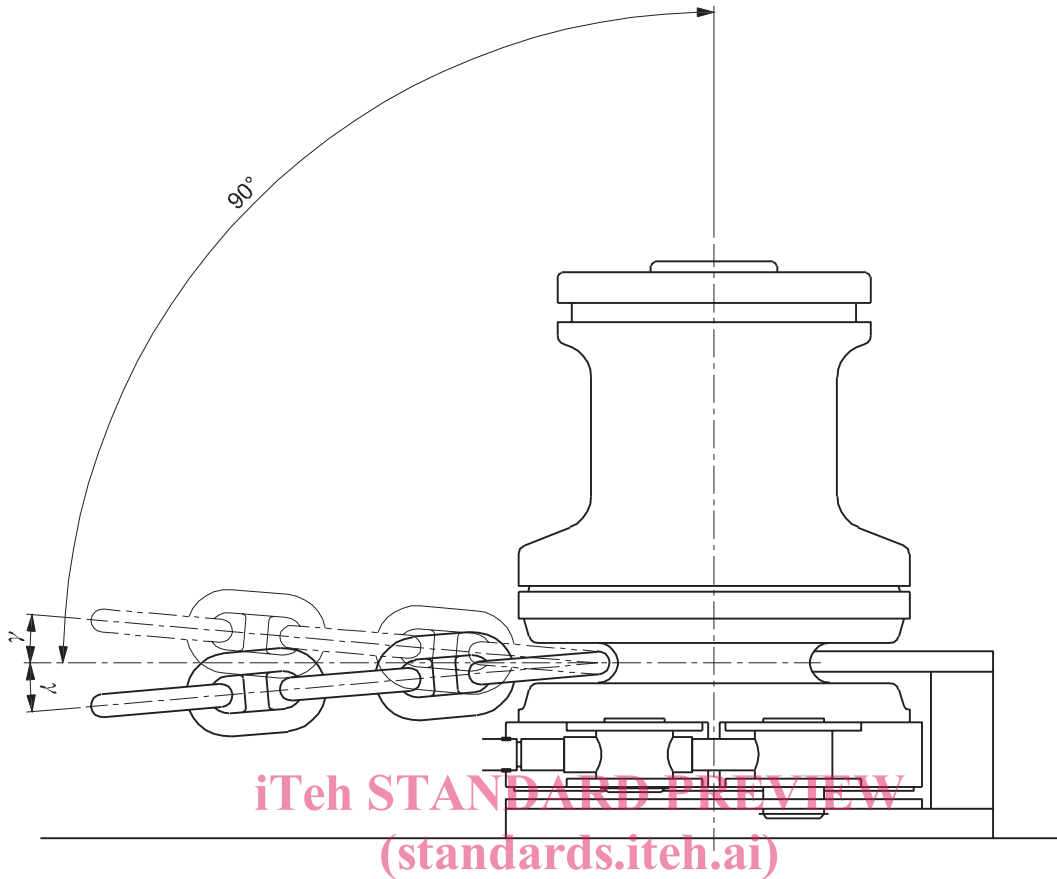


Figure 2 — Deviation angle of chain, γ

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4 Design and construction

4.1 Cable-lifter

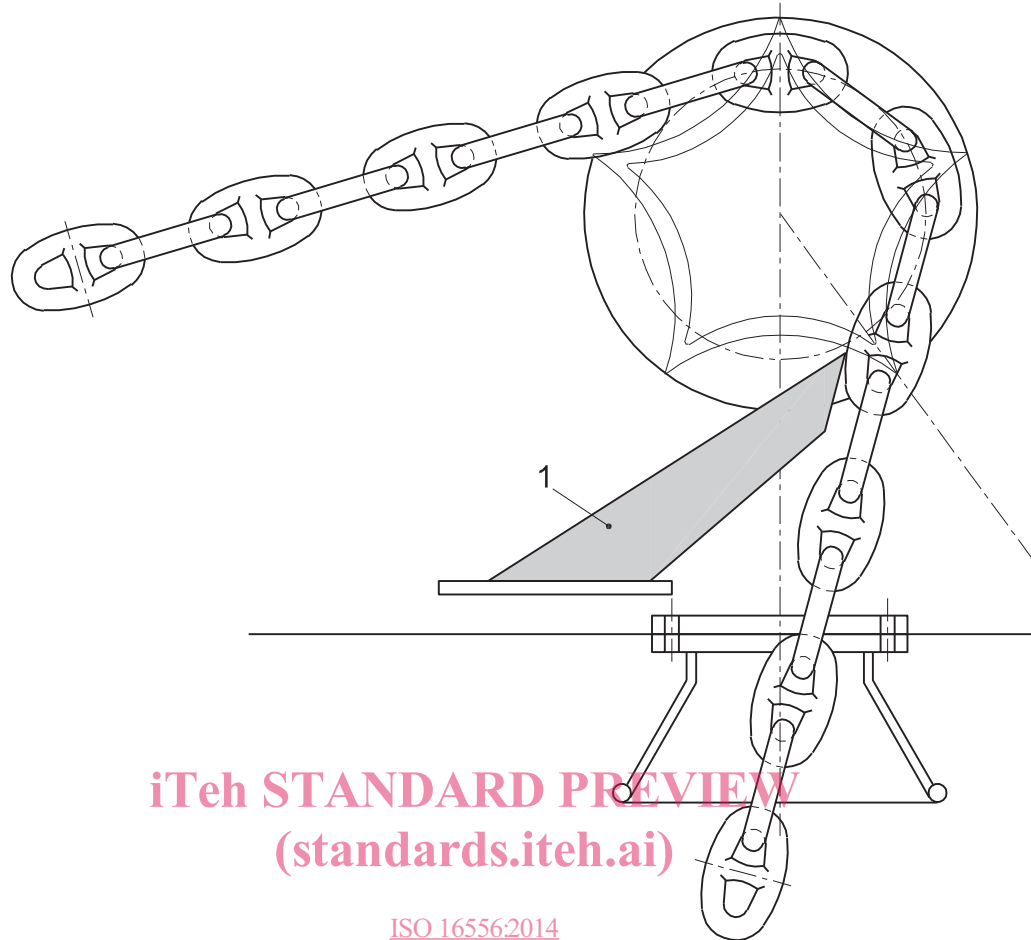
4.1.1 Snugs

The cable lifter shall have at least five snugs and shall be able to lower and retrieve the chain cable without slipping. A minimum of three snugs shall be engaged simultaneously during operation. The working conditions of the cable lifter are related to the number of snugs and the minimum winding angle, β_{\min} , as specified by the windlass manufacturer in [Clause 6](#).

NOTE As guidance, β_{\min} shall be as large as possible and ideally close to 180°. Smaller angles of β_{\min} should be reflected in a higher number of snugs and include agreeing, β_{\min} between the yacht designer and the windlass manufacturer.

4.1.2 Windlass

The component manufacturer shall ensure that the windlass has the ability for safe chain separation when in operation.



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Key

- 1 chain separator element

Figure 3 — Chain separator element

4.1.3 Brake holding loads

Where a chain stopper is not fitted, the winlass has to be designed to withstand 80 % of the cable breaking load.

Where a chain stopper is fitted, the winlass braking system shall have sufficient brake capacity to ensure safe stopping when paying out the anchor and chain.

4.1.4 Brake activating systems

Brake activating systems are the following:

- manual brake device;
- an automatic hydraulic or pneumatic brake including the below additional means of control;
- manually through levers;
- a backup energy source allowing three consecutive repetitions offline from main power.