

DRAFT INTERNATIONAL STANDARD

ISO/DIS 23577

ISO/TC 8/SC 4

Secretariat: SAC

Voting begins on:
2020-03-19

Voting terminates on:
2020-06-11

Terms and definitions for cargo securing systems on ships

ICS: ISO ics

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Reference number
ISO/DIS 23577:2020(E)

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Published in Switzerland

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Foreword

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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/directives).

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For an explanation on 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 the following URL: 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*.

Terms and definitions for cargo securing systems on ships

1 Scope

This document specifies general terms for cargo securing systems on ships as well as specific terms on cargo securing on container ships, ro-ro ships.

This document is applicable to the design, manufacture, trade, teaching and other fields of cargo securing systems of different ships.

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 3874, *Series 1 freight containers — Handling and securing*

IMO Assembly Resolution A. 489(XII), Safe stowage and securing of cargo units and other entities in ships other than cellular containerships

IMO Assembly Resolution A. 581(14), Guidelines for securing arrangements for the transport of road vehicles on ro-ro ships

3 Terms and definitions

For the purposes of this document, terms and definitions in ISO 3874 and the following apply.

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

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

3.1 General terms for cargo securing system

3.1.1

Cargo securing devices

All fixed and loose devices used to secure and support cargo units

3.1.2

Fixed fittings

Securing devices permanently installed in the vessel

3.1.3

Loose fittings

Securing devices not permanently installed in the vessel

3.1.4

Maximum securing load (MSL)

The maximum allowable load capacity for a device used to secure cargo to a ship

3.1.5

Proof load (PL)

The test load during testing of securing devices

3.1.6

Minimum breaking load (MBL)

The tested minimum breaking strength of a securing device

3.1.7

Cargo securing manual

The instruction on ship's cargo arrangement, stacking and securing used to ensure safe securing and stacking of the cargo

3.1.8

Transverse acceleration

Acceleration parallel to the ship's deck in transverse direction due to the ship's motion

3.1.9

Longitudinal acceleration

Acceleration parallel to the ship's deck in longitudinal direction due to the ship's motion

3.1.10

Vertical acceleration

Acceleration perpendicular to the ship's deck in vertical direction due to the ship's motion

3.1.11

Lashing point

Hole structure or ring structure used to bear lashing force either on the cargo or vessel

3.1.12

Cargo safe access

Area used by the operator for safe operation of cargo securing devices

3.1.13

Lashing system

A system combining several securing products together in a certain manner to ensure cargo transportation safety through combined action

3.1.14

Lashing point plan

Layout plan of fixed fittings on a ship

3.1.15

Wind load

Force by wind to cargo units above the weather deck

3.1.16

Sea load

Force by sea to cargo units above the weather deck

3.1.17

Securing

The process to secure cargo with cargo securing devices

3.1.18

Securing force

Force required to prevent cargo from shifting on board, based on calculations

3.1.19

Ship's cargo

The cargo or cargo unit which needs to be loaded on ships or other water floating units for water transport

3.1.20**Cargo unit**

A vehicle, container, flat, pallet, portable tank, packaged unit, or any other entity, etc., and loading equipment, or any part thereof, which belongs to the ship but is not fixed to the ship as defined in Assembly Resolution A.489(XII)

3.1.21**Standardized cargo**

Cargo for which the ship is provided with an approved securing system based upon cargo units of specific types, such as containers, railway wagons and shipborne barges etc.

3.1.22**Semi-standardized cargo**

Cargo for which the ship is provided with a securing system capable of accommodating a limited variety of cargo units, such as vehicles, trailers, etc.

3.1.23**Non-standardized cargo**

Cargo which requires individual stowage and securing arrangements

3.1.24**Gravity center of cargo unit**

The point of action of the resultant force of gravity borne by different parts of cargo unit

3.1.25**Lashing angle**

Angle between lashing device and horizontal plane or vertical plane, also called securing angle, see [Figure 1](#)

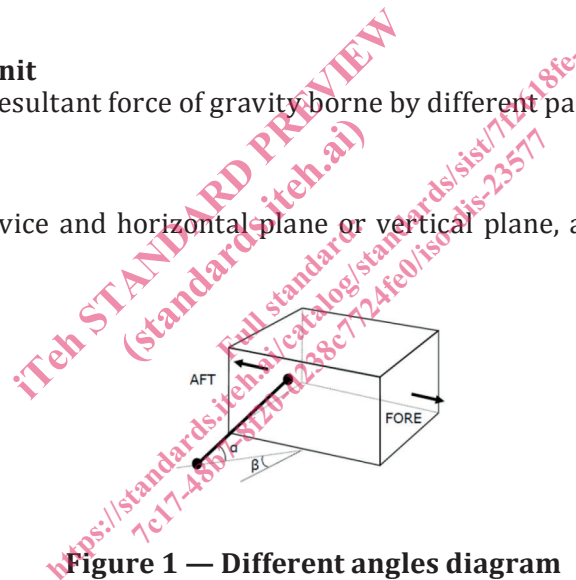


Figure 1 — Different angles diagram

3.1.26**Vertical lashing angle α**

Angle between the lashing device and the horizontal plane, see [Figure 1](#)

3.1.27**Horizontal lashing angle β**

Angle between the lashing device and the transverse direction on board the vessel, see [Figure 1](#)

3.1.28**Lashing interference**

Conditions where securing equipment conflict with each other or with the vessel structure

3.1.29**Storage device**

Device used to store loose fittings, including storage rack and storage bin, etc.

3.1.30**Storage rack**

The rack used to store loose fittings

3.1.31

Storage bin

The bin used to store loose fittings

3.1.32

Lashing

Securing method to prevent cargo from shifting which may impact transportation safety

3.2 Terms for container securing

3.2.1

(Container) Securing fittings

Securing devices used between containers and between a container and the deck, hatch cover, or bilge, to prevent the container from longitudinal, transverse, or vertical movements relative to the hull during transportation

3.2.2

(Container) Lashing fittings

Securing devices used to lash a container to a hatch cover or deck

3.2.3

(Container) Buttress fittings

Securing devices used to eliminate the clearance between a container and a longitudinal bulkhead and transfer any transverse forces to the longitudinal bulkhead

3.2.4

Twistlock

Structural part used for securing between containers or between the container and fixed fittings and bearing longitudinal, transverse and vertical forces, provided with opening and closing devices.

3.2.5

Lashing rod

Rod-shaped structural part used to resist container distortion and improve the stack weight of the container.

3.2.6

Bridge fitting

Structural parts used for transverse connection of roof corners on the top adjacent containers

3.2.7

Allowable torsion

Safe racking load allowed by the container

3.2.8

Allowable pressure

Safe pressure allowed by the container

3.2.9

Corner post load

The maximum safe load bearable by the corner post of the container body

3.2.10

Lashing bridge

Bridge-type steel structure set on the deck between hatch covers of the hull to increase stack weight and for the convenience of lashing

3.2.11

Stanchion

Steel structure mainly used to support the weight of containers and set on port, starboard and the main deck

3.2.12**Cell guide**

Steel structure used for the convenience of container loading and unloading as well as transverse support of containers, and is set in holds or on deck

3.2.13**Raised socket**

Raised base welded to the deck, hatch cover, stanchion or other structures to bear the weight of containers

3.2.14**Flush socket**

Base welded in holds or on deck to bear the weight of containers. Its upper surface is on the same plane as the welding surface

3.2.15**Sliding socket**

Raised and removable base which can move in a direction in order to adjust the distance of container along the direction properly

3.2.16**Doubling plate**

Baseplate welded in holds to fix containers with the assistance of single stackers or other elements

3.2.17**Dovetail foundation**

Foundation welded to the hatch cover or deck, which is used together with a sliding socket and base twistlock to move the base twistlock or sliding socket in a certain direction

3.2.18**Weldable cone**

Structural parts welded to the bilge to limit longitudinal and transverse movement of containers

3.2.19**Manual twistlock**

Twistlock which shall be opened or closed manually

3.2.20**Semi-automatic twistlock**

Twistlock which can be closed automatically by applying a mechanical device to drive tip cone and/or base cone but shall be opened manually

3.2.21**Full automatic twistlock**

Specially structured twistlock used between containers and fixed fittings or between different containers to prevent them from being separated because of overturning, which can slip off automatically when being lifted without any need for manual opening and closing

3.2.22**Midlock**

Special lock used with a semi-automatic lock and set in the hole of end corner fittings between two 20 foot containers (i.e. a 40 foot container) without any need for manual opening and closing

3.2.23**Single stacker**

Structural part used between the bottom of cabin and the container or between two containers to limit longitudinal and transverse movement of a single container