
**Ships and marine technology —
Cargo securing systems on ships —
Vocabulary**

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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 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*.

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 — Cargo securing systems on ships — Vocabulary

1 Scope

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

It is applicable to the design, manufacture, trade, teaching and other fields of cargo securing systems on ships.

NOTE ISO 3874 defines specific terms for handling and securing methods on series 1 freight containers.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

3.1 General terms for cargo securing system

3.1.1

cargo securing device

securing device

fixed and portable devices used to secure and support *cargo units* (3.1.20)

3.1.2

fixed fitting

securing device (3.1.1) permanently installed in the vessel

3.1.3

portable fitting

loose fitting

securing device (3.1.1) not permanently installed in the vessel

3.1.4

maximum securing load

MSL

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

3.1.5

proof load

PL

test load during testing of a *securing device* (3.1.1)

3.1.6

minimum breaking load

MBL

tested minimum breaking strength of a *securing device* ([3.1.1](#))

3.1.7

cargo securing manual

document that specifies the arrangements to be used, and the cargo *securing fittings* ([3.2.1](#)) provided on board, to ensure safe stowage, stacking and *securing* ([3.1.17](#)) of the cargo

Note 1 to entry: It is a mandatory ship-specific document.

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

structure used to bear the force of the lashing and to distribute it to the structure of the hull (or cargo), which can be e.g. a hole, a ring or a bar

3.1.12

cargo safe access

area used by the operator for the safe operation of *cargo securing devices* ([3.1.1](#))

3.1.13

cargo securing system

system combining several *securing devices* ([3.1.1](#)) and structures together to ensure cargo transportation safety through combined action

3.1.14

fixed fitting arrangement plan

layout plan of *fixed fittings* ([3.1.2](#)) on a ship

3.1.15

wind load

force by wind affecting *cargo units* ([3.1.20](#)) on open decks

3.1.16

sea load

force by sea affecting *cargo units* ([3.1.20](#)) on open decks

3.1.17

securing

process to secure cargo with *cargo securing devices* ([3.1.1](#))

3.1.18

securing force

force required to prevent cargo from shifting, e.g. sliding or tipping on board, based on calculations

3.1.19

ship's cargo

cargo or *cargo unit* ([3.1.20](#)) loaded on ships or other floating units for sea transport

3.1.20**cargo unit**

loading equipment, or any part thereof, which belongs to the ship but is not fixed to the ship, such as vehicles, containers, flats, pallets, portable tanks, packaged units, or any other entity

Note 1 to entry: The IMO Assembly Resolution A.489(XII)^[2] defines cargo units and other entities in 1.

3.1.21**standardized cargo**

cargo for which the ship is provided with an approved securing system based upon *cargo units* (3.1.20) of specific types, such as e.g. containers, railway wagons and shipborne barges

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* (3.1.20), such as e.g. vehicles and trailers

3.1.23**non-standardized cargo**

cargo that requires individual stowage and securing arrangements

3.1.24**gravity centre of cargo unit**

point of action of the resultant force of gravity borne by different parts of a *cargo unit* (3.1.20)

3.1.25**lashing angle****securing angle**

angle between a lashing device and the horizontal plane or vertical plane

3.1.26**vertical lashing angle**

α

lashing angle (3.1.25) between a lashing device and the horizontal plane.

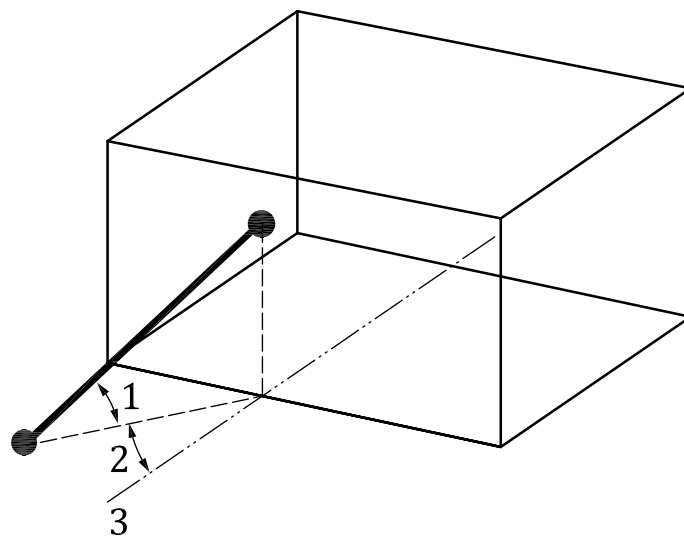
Note 1 to entry: See [Figure 1](#).

3.1.27**horizontal lashing angle**

β

lashing angle (3.1.25) between a lashing device and the transverse direction on board the vessel

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



Key

- 1 vertical lashing angle, α
- 2 horizontal lashing angle, β
- 3 axis parallel to the transverse direction of the vessel

Figure 1 — Lashing angles diagram

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 *portable fittings* (3.1.3)

EXAMPLE Storage rack (3.1.30), storage bin (3.1.31).

3.1.30

storage rack

rack used to store *portable fittings* (3.1.3)

3.1.31

storage bin

bin used to store *portable fittings* (3.1.3)

3.1.32

lashing

securing method providing pulling forces to prevent cargo from shifting, which can impact transportation safety

EXAMPLE Securing containers with *lashing rods* (3.2.5) and *turnbuckles* (3.2.30).

3.1.33

cargo securing method

securing method to prevent cargo from shifting by *lashing* (3.1.32), blocking or locking by respectively providing a pulling force, pushing force or both

3.1.34

tensioning device

device used to tighten lashings

3.2 Terms for container securing

3.2.1

container securing fitting

securing fitting

securing device (3.1.1) 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 fitting

lashings fitting

securing device (3.1.1) used to lash a container to a hatch cover or deck

3.2.3

container buttress fitting

buttress fitting

securing device (3.1.1) used to eliminate the clearance between a container and a longitudinal bulkhead, and to transfer any transverse forces to the longitudinal bulkhead

3.2.4

twistlock

portable fitting (3.1.3) used for *securing* (3.1.17) between containers or between the container and *fixed fittings* (3.1.2), bearing longitudinal, transverse and vertical forces, and provided with opening and closing devices

3.2.5

lashings rod

rod-shaped *portable fitting* (3.1.3) used to resist container distortion and to improve the stack weight of the container

3.2.6

bridge fitting

portable fitting (3.1.3) used for the transverse connection of roof corners on the top of 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

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

3.2.10

lashings bridge

bridge-type steel structure for accommodating lashings set on deck

3.2.11

stanchion

steel structure mainly used to support the weight of containers on deck

3.2.12

cell guide

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

3.2.13

raised socket

raised base welded to the deck, hatch cover, *stanchion* (3.2.11) 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, whose upper surface is on the same plane as the welding surface

3.2.15

sliding socket

raised and removable base that can move in one direction in order to adjust the distance of containers along the direction properly

3.2.16

doubling plate

baseplate welded in holds to fix containers with the assistance of *single stackers* (3.2.24) or other elements

3.2.17

dovetail foundation

foundation welded to the hatch cover or deck, used together with a *sliding socket* (3.2.15) and base *twistlock* (3.2.4) to move the base twistlock or sliding socket in a certain direction

3.2.18

weldable cone

fixed fitting (3.1.2) welded in holds to limit longitudinal and transverse movement of containers

3.2.19

manual twistlock

twistlock (3.2.4) that is manually opened or closed

3.2.20

semi-automatic twistlock

twistlock (3.2.4) that is automatically closed by applying a mechanical device to drive the tip *cone* (3.2.23) and/or base cone, but that is manually opened

3.2.21

fully automatic twistlock

twistlock (3.2.4) used between containers and *fixed fittings* (3.1.2), or between different containers to prevent them from being separated because of overturning, that can slip off automatically when being lifted without any need for manual opening and closing

3.2.22

midlock

lock used with a semi-automatic lock and set in the hole of inner end corner fittings of two 20 ft containers when placed in a 40 ft container slot without any need for manual opening and closing

3.2.23

cone

part of a stacking fitting that fits into the top or bottom aperture of a corner fitting or a securing socket, and that restrains connected containers from horizontal sliding

3.2.24

single stacker

portable fitting (3.1.3) used between the bottom in holds and the container, or between two containers, to limit longitudinal and transverse movement of a single container

3.2.25**transverse double stacker**

portable fitting (3.1.3) used between the bottom in holds and two transverse containers, or between two transverse containers, to limit relative transverse movement of the two containers

3.2.26**hanging stacker****safety single base**

portable fitting (3.1.3) set between two containers in holds, that can also be hung on the bottom of a container to bear longitudinal and transverse shear forces

3.2.27**D-ring**

D-shaped ring used to connect *turnbuckles* (3.2.30) and other *lashing fittings* (3.2.2), to transfer the lashing force to the hull

3.2.28**lashing plate**

plate-type *fixed fitting* (3.1.2) with holes, used to connect *turnbuckles* (3.2.30) and other *lashing fittings* (3.2.2), to transfer the lashing force to the hull

3.2.29**guide fitting**

fixed fitting (3.1.2) welded to the bottom of the inside cabin to guide and locate containers to limit their transverse movements

3.2.30**turnbuckle**

coupling with internal screw threads used to connect two threaded rods fitted with end fittings for *lashing* (3.1.32) purposes, in order to adjust the length and/or tension of the rods

3.2.31**raised counter bearing**

fixed fitting (3.1.2), which is protruding on the welded surface, welded to a longitudinal bulkhead, used with a support to transfer transverse force to the hull

3.2.32**flush counter bearing**

fixed fitting (3.1.2), which is flush with the welded surface, welded to a longitudinal bulkhead, used with a support to transfer transverse force to the hull

3.2.33**swivel head**

part of a *lashing rod* (3.2.5) connected with corner fittings to a container

3.2.34**lashing rod ring**

ring structure at the end of a *lashing rod* (3.2.5) connected with *turnbuckles* (3.2.30)

3.2.35**lashing rod with plugs****multi-knob lashing rod**

lashing rod (3.2.5) that can be adjusted in length by knobs or plugs and connected to a *turnbuckle* (3.2.30)

3.2.36**pressure guide**

steel structural part set on the longitudinal bulkhead in holds to bear the transverse pressure of the container, and provided with a guide structure to load and unload containers conveniently

3.2.37

**guide head
entry guide**

structural part mounted on the upper part of the *cell guide* (3.2.12) to lead the containers into the cell guide properly during loading

3.2.38

cross-lashing

arrangement to fit one *tier* (3.2.47) of lashings, placed diagonally within the width of the container, with the tops of the *lashing rods* (3.2.5) placed in the bottom corner fittings of the second-tier containers

3.2.39

external lashing

alternative arrangement, with the *lashing rods* (3.2.5) located outside of the width of the container

3.2.40

mock-up test

lashing test that uses an analogue lashing device to verify whether the designed lashing scheme and parameters are reasonably based on the actual working conditions of the ship

3.2.41

separation force

force, due to the ship's movement, that can cause separation between the hull and the container or between two containers

3.2.42

typical container stowage weight plan

schematic diagram of each container weight at different elevations in case of the maximum allowable *stack* (3.2.48) weight

3.2.43

standard GAP

longitudinal clearance of 76 mm between two 20 ft container assembled as one 40 ft container

3.2.44

container stowage plan

schematic diagram of container *stacks* (3.2.48) on the ship

3.2.45

bay

location where containers are laid out on deck or in holds longitudinally, in the direction of the ship length

3.2.46

row

location where containers are laid out on deck or in holds transversely, in the direction of the ship width

3.2.47

tier

location where containers are laid out on deck or in holds vertically, in the direction of the ship elevation

3.2.48

stack

combination of containers that are piled up layer by layer vertically along a line or *row* (3.2.46)

3.2.49

block

stacks (3.2.48) interconnected and secured horizontally by *bridge fittings* (3.2.6) or double stacking *cones* (3.2.23)

3.2.50**vertical lashing**

lashing in the vertical direction to offset the *separation force* ([3.2.41](#))

3.2.51**wind-proof lashing**

lashing configuration to withstand the *wind load* ([3.1.15](#))

3.2.52**cargo safe access plan**

layout of safe access for crew to carry out cargo *securing* ([3.1.17](#)) operations

3.2.53**lashing platform**

working platform with a proper protective structure to carry out *lashing* ([3.1.32](#)) operations

3.2.54**fencing**

protective handrail to ensure operations of the securing personnel

3.2.55**lashing computer system**

computer-based system for the calculation and control of container securing arrangements for compliance with applicable strength requirements

3.3 Terms for ro-ro cargo securing**3.3.1****ro-ro ship**

ship with one or more decks either closed or open, not normally subdivided in any way and generally running the entire length of the ship, where the cargo is rolled on and off the ship

3.3.2**road vehicle**

vehicle designed to operate on a road

Note 1 to entry: The IMO Resolution MSC 102/J/8^[8] defines road vehicle in 3.2 as including *commercial vehicle* ([3.3.3](#)), *semi-trailer* ([3.3.4](#)), *road train* ([3.3.5](#)), *articulated road train* ([3.3.6](#)) or a *combination of vehicles* ([3.3.7](#)).

[SOURCE: ISO 12353-1:2020, 4.3, modified – Note 1 to entry has been added.]

3.3.3**commercial vehicle**

motor vehicle that, on account of its design and appointments, is used mainly for conveying goods

Note 1 to entry: It can also be towing a trailer.

3.3.4**semi-trailer**

trailer that is designed to be coupled to a semi-trailer towing vehicle and to impose a substantial part of its total mass on the towing vehicle

3.3.5**road train**

combination of a motor vehicle with one or more independent trailers connected by a draw-bar

3.3.6**articulated road train**

combination of a semi-trailer towing vehicle with a *semi-trailer* ([3.3.4](#))

3.3.7

combination of vehicles

motor vehicle coupled with one or more towed vehicles

3.3.8

roll-trailer

low flat bed terminal *semi-trailer* ([3.3.4](#)) for the carriage of cargo with one or more wheel axles on the rear and a support on the front end, which is towed or pushed in the port to and from its stowage on board the ship by a goose neck equipped tow-vehicle

3.3.9

road tank-vehicle

vehicle with wheels and fitted with a tank or tanks intended for the transport of gases, liquids or solids by both road and sea modes of transport, the tank or tanks of which are rigidly and permanently attached to the vehicle during all normal operations of loading, transport and discharge, and are neither filled nor emptied on board

3.3.10

cassette

low flat bed platform without wheels for the carriage of cargo, which is loaded on board the ship by a transliifter trailer

3.3.11

vehicle deck

deck used to load *road vehicles* ([3.3.2](#))

3.3.12

gross vehicle mass

GVM

maximum operating mass of a vehicle as specified by the manufacturer

3.3.13

wheel chock

wedge-shaped *block* ([3.2.49](#)) that is laid below the tire to prevent rolling of the wheel

3.3.14

vertical support device

vertical support equipment for the vehicle

3.3.15

lashing chain

chains used to lash vehicles or other ro-ro cargoes

3.3.16

lashing hook

part on a lashing device to attach it to securing points on ro-ro cargo or a vessel deck

3.3.17

web lashing

flat woven textile webbing with or without end fittings

3.3.18

raised lashing pot

fixed *lashing fitting* ([3.2.2](#)) permanently installed on top of the deck plating

3.3.19

flush lashing pot

fixed *lashing fitting* ([3.2.2](#)) permanently installed in line with the deck plating