

# 货物系固手册

## CARGO SECURING MANUAL

XX 轮

MV. XXX

本手册是根据 1974 年国际海上人命安全公约（SOLAS）及其修正案要求，且按照 MSC.1/Circ.1353（货物系固手册编制指南）的具体要求和格式编制。

This manual was made according to the requirement of SOLAS including its amendments, and format of MSC.1/Circ.1353.

编制公司：

Company：

编制时间 Date：

批准机构 Approved by：

批准时间 Approval date：

## 船舶信息 Information of ship

船名 Name of Ship:

船旗国 Flag:

船型 Type of Ship:

船东 Owner:

船级社 Class:

IMO No. :

垂线间长 LBP:

型宽 Berth:

型深 Depth

吃水 Draught:

总吨 GT:

初稳性高度  $GM_0$ :

本手册由 ClassIBS 验船师贺彤、刘颖钊依照经修订的《货物系固手册编制指南》(MSC.1/Circ.1353)编写。各船舶在整理过程中,应注意:1、文中红色字体部分,需船东根据本轮实际情况填写或完善,如该部分不适用于本轮,可跳过或注明“不适用于本轮”。2、文中蓝色字体部分,为手册内容举例示范。3、根据各轮实际情况定稿后的手册,应将各章各条中类似“本条应包括”等指导性字样删除。

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## 前言 PREAMBLE

1. 根据 1974 年 SOLAS 公约的第 VI、VII 章和“货物堆装及系固安全实施规则”(CSS Code), 货物单元包括集装箱都要按照主管机关批准的《货物系固手册》堆装和系固并贯穿整个航次。In accordance with the International Convention for the Safety of Life at Sea, 1974 (SOLAS) chapters VI, VII and the Code of Safe Practice for Cargo Stowage and Securing (CSS Code), cargo units, including containers shall be stowed and secured throughout the voyage in accordance with a Cargo Securing Manual, approved by the Administration.
2. 装载非固体及非液体货物的所有类型船舶都需要配备《货物系固手册》。The Cargo Securing Manual is required on all types of ships engaged in the carriage of all cargoes other than solid and liquid bulk cargoes.
3. 本手册覆盖货物堆装和系固的所有方面, 并提供一种一致的方法来准备《货物系固手册》, 包括布局及内容。主管机关可以继续接受根据“集装箱及货物 - 货物系固手册 (MSC/Circ. 385)”编制的货物系固手册, 只要里面的内容满足现在的指南。Cargo Securing Manuals cover all relevant aspects of cargo stowage and securing and to provide a uniform approach to the preparation of Cargo Securing Manuals, their layout and content. Administrations may continue accepting Cargo Securing Manuals drafted in accordance with Containers and cargoes (BC) - Cargo Securing Manual (MSC/Circ. 385) provided that they satisfy the requirements of these guidelines.
4. 如果必要, 当船舶计划装载标准集装箱, 这些手册应该明确的更新。If necessary, those manuals should be revised explicitly when the ship is intended to carry containers in a standardized system.
5. 重要的是系固设备要满足可接受的功能及强度标准, 以适用船舶及其装载的货物。同样重要的是船上的驾驶员要清楚地知道涉及到受力的大小及方向, 货物系固设备的正确使用及其局限性。应该指导船员及受雇进行货物系固人员使用正确的方法, 以及如何使用船上的货物系固设备。It is important that securing devices meet acceptable functional and strength criteria applicable to the ship and its cargo. It is also important that the officers on board are aware of the magnitude and direction of the forces involved and the correct application and limitations of the cargo securing devices. The crew and other persons employed for the securing of cargoes should be instructed in the correct application and use of the cargo securing devices on board the ship.
6. 本手册第 5 章只适用于 2015 年 1 月 1 日及以后铺放龙骨或处于类似阶段建造的集装箱船。Chapter 5 of manual apply for containerships, the keels of which were laid or which are at a similar stage of construction on or after 1 January 2015;

# 第一章 总则 CHAPTER 1 GENERAL

## 1.1 定义 Definitions

1.1.1 货物系固设备，是指所有用于系固和支持货物单元的固定式和便携式装置。Cargo securing devices are all fixed and portable devices used to secure and support cargo units.

1.1.2 最大系固载荷（MSL），是指船上系固设备的许用负荷，就象起重设备和安全工作负荷一样。当能提供等同或较高的强度时，安全工作负荷 SWL 可以代替 MSL。Maximum securing load (MSL) is a term used to define the allowable load capacity for a device used to secure cargo to a ship. Safe working load (SWL) may be substituted for MSL for securing purposes, provided this is equal to or exceeds the strength defined by

1.1.3 标准货，是指已根据货物单元的特定形式，在船上设置了经批准的系固系统的货物，如集装箱。Standardized cargo means cargo for which the ship is provided with an approved securing system based upon cargo units of specific types. e. g. container.

1.1.4 半标准货，是指在船上设置的系固系统，仅适应有限变化的货物单元，如车辆。Semi-standardized cargo means 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. e. g. car.

1.1.5 非标准货，是指需要专门的堆装和系固安排的货物，如卷钢、木材等。Non-standardized cargo means cargo which requires individual stowage and securing arrangements. e. g. rolled steel, timber, etc.

1.1.6 固定式系固设备，是指系固点及其支撑结构。这些设备即可以是内部的，如焊接在船体结构内，也可以是暴露在外的，如直接焊接在船体结构外部。

1.1.7 便携式系固设备，是指用于货物单元绑扎、系固和支撑的移动式设备。

## 1.2 手册的准备 Preparation of the manual

本手册使用汉语及英语编写。The Cargo Securing Manual be written in Chinese and English.

## 1.3 通用信息 General information

本章应包括下列通用声明：This chapter should contain the following general statements:

.1 本手册不排除良好的航海技术，也不能取代在堆装和系固方面的经验 The manual given herein should by no means rule out the principles of good seamanship, neither can it replace experience in stowage and securing practice.

.2 本手册的资料和要求与下述文件中的要求一致：船舶稳性计算书、国际载重线证书、船舶装载手册和国际海上危险品规则（适用时）。The information and requirements set forth in this Manual are consistent with the requirements of the vessel's trim and stability booklet, International Load Line Certificate (1966), the hull strength loading manual (if provided) and with the requirements of the International Maritime Dangerous Goods (IMDG) Code (if applicable).

.3 本手册规定了船上的货物系固设备的最大系固载荷及其布置方式，以便对货物单元进

行正确的系固，这些规定基于恶劣气候和海况下货物单元所受到的纵向力、横向力和垂向力。This Cargo Securing Manual specifies arrangements and cargo securing devices provided on board the ship for the correct application to and the securing of cargo units, containers, vehicles and other entities, based on transverse, longitudinal and vertical forces which may arise during adverse weather and sea conditions.

. 4 应该认识到对货物的合理系固，以及在船上选择适当的系固点，对船、货、人的安全都是至关重要的。It is imperative to the safety of the ship and the protection of the cargo and personnel that the securing of the cargo is carried out properly and that only appropriate securing points or fittings should be used for cargo securing.

. 5 本手册中提到的货物系固设备应被正确使用，并应适合货物的数量、包装方式和物理特性。当采用新型或替代的系固设备时，手册应相应修改。替代设备的强度不应低于原设备。The cargo securing devices mentioned in this manual should be applied so as to be suitable and adapted to the quantity, type of packaging, and physical properties of the cargo to be carried. When new or alternative types of cargo securing devices are introduced, the Cargo Securing Manual should be revised accordingly. Alternative cargo securing devices introduced should not have less strength than the devices being replaced.

. 6 船上应配有足够的设备用系固设备 There should be a sufficient quantity of reserve cargo securing devices on board the ship.

. 7 如适用，本手册中应提供每种货物系固设备的强度、使用和维护的资料。货物系固设备应被良好地维护，当存在影响系固效果的磨损或损坏时，应予更新。Information on the strength and instructions for the use and maintenance of each specific type of cargo securing device, where applicable, is provided in this manual. The cargo securing devices should be maintained in a satisfactory condition. Items worn or damaged to such an extent that their quality is impaired should be replaced.

. 8 货物安全通道布置 CSAP 为进行与货物堆装和系固相关工作人员，提供了详细的信息，应根据此布置提供并保持安全通道。The Cargo Safe Access Plan (CSAP) is intended to provide detailed information for persons engaged in work connected with cargo stowage and securing. Safe access should be provided and maintained in accordance with this plan.

## 第二章 系固设备及其布置

### CHAPTER 2 SECURING DEVICES AND ARRANGEMENTS

#### 2.1 固定式系固设备 Specification for fixed cargo securing devices

本条应有必要图示，说明固定货物系固装置的数量，位置，类型及最大系固载荷，至少包含下列信息：This sub-chapter should indicate and where necessary illustrate the number, locations, type and MSL of the fixed devices used to secure cargo and should as a minimum contain the following information:

2.1.1 一份固定货物系固装置的清单和/或图纸，尽可能附带各种类型的装置的相关文件：a list and/or plan of the fixed cargo securing devices, which should be supplemented with appropriate documentation for each type of device as far as practicable. The appropriate documentation should include information as applicable regarding:

- .1 生产厂家名字；name of manufacturer；
- .2 型号，并附带简图；type designation of item with simple sketch for ease of identification；
- .3 材料；material(s)；
- .4 识别标识；identification marking；
- .5 强度试验结果及极限拉伸强度试验结果；strength test result or ultimate tensile strength test result；
- .6 无损探伤试验结果；result of non destructive testing；and
- .7 最大系固载荷；Maximum Securing Load (MSL)；

2.1.2 舱壁、强肋骨、立柱等处的固定式系固设备及其类型（如：眼环，带眼螺栓等），包括他们的最大系固载荷；fixed securing devices on bulkheads, web frames, stanchions, etc. and their types (e.g., pad eyes, eyebolts, etc.), where provided, including their MSL；

2.1.3 甲板上的固定系固设备及其类型（如：象脚装置，集装箱角件孔等），包括他们的最大系固载荷；fixed securing devices on decks and their types (e.g., elephant feet fittings, container fittings, apertures, etc.) where provided, including their MSL；

2.1.4 甲板上部的固定式系固设备，及其类型和他们的最大系固载荷（如有时）；fixed securing devices on deckheads, where provided, listing their types and MSL；and

2.1.5 对带有非标准化固定式系固装置的现有船，最大系固载荷及系固点位置的信息是必须有的。for existing ships with non-standardized fixed securing devices, the information on MSL and location of securing points is deemed sufficient.

#### 2.2 便携式系固设备 Specification for portable cargo securing devices

本条应当列出船上所存便携式系固设备的数量，功能及设计特点，如必要并应辅以适当的图纸或草图。应尽可能包含以下信息：This sub-chapter should describe the number of and the functional and design characteristics of the portable cargo securing devices carried on board the ship, and should be supplemented by suitable drawings

or sketches if deemed necessary. It should contain the following information as applicable:

2.2.1 一份便携式系固设备的清单, 并尽可能辅以每一类型的装置的相关文件。每一相关文件应包含下列信息: a list for the portable securing devices, which should be supplemented with appropriate documentation for each type of device, as far as practicable. The appropriate documentation should include information as applicable regarding:

- .1 生产厂家名字; name of manufacturer;
- .2 项目的设计型号及为方便识别而附带的简图; type designation of item with simple sketch for ease of identification;
- .3 材料, 包括最小安全操作温度; material(s), including minimum safe operational temperature;
- .4 识别标识; identification marking;
- .5 强度试验结果及极限拉伸强度试验结果; strength test result or ultimate tensile strength test result;
- .6 无损探伤试验结果; result of non destructive testing; and
- .7 最大系固载荷; Maximum Securing Load (MSL);

(举例: 船首物料间内, D形19mm卸扣20只, X厂生产, 安全工作负荷为2T, 黑色等)

2.2.2 集装箱堆装装置、集装箱甲板系固装置、集装箱互锁装置、桥式联锁器等, 及其最大系固载荷和使用方法。container stacking fittings, container deck securing fittings, fittings for interlocking of containers, bridge-fittings, etc., their MSL and use;

2.2.3 链条、钢丝绳、连杆等, 及其最大系固载荷和使用方法。chains, wire lashings, rods, etc., their MSL and use;

2.2.4 张紧器(如花篮螺栓、紧链器等), 及其最大系固载荷和使用方法。tensioners (e.g., turnbuckles, chain tensioners, etc.), their MSL and use;

2.2.5 小汽车或其车辆的固定装置, 及其最大系固载荷和使用方法。securing gear for cars, and other vehicles, their MSL and use;

2.2.6 用于车辆(拖车等)的支架与千斤顶, 及其最大系固载荷和使用方法。trestles and jacks, etc., for vehicles (trailers) where provided, including their MSL and use; and

2.2.7 用于易滑货物的防滑材料(如: 软木板)。anti-skid material (e.g., soft boards) for use with cargo units having low frictional characteristics.

## 2.3 检查和维修方案 Inspection and maintenance schemes

本条应当描述船上货物系固设备的检查和维修保养方案。This sub-chapter should describe inspection and maintenance schemes of the cargo securing devices on board the ship.

2.3.1 船长负责定期检查和维修保养。货物系固装置的检查最低应包括: Regular inspections and maintenance should be carried out under the responsibility of the master. Cargo securing devices inspections as a minimum should include:

- .1 对构件的日常外观检查; routine visual examinations of components being utilized;

and

.2 主管机关要求的定期检查/再测试。当主管机关需要时，应对货物系固设备进行检查。periodic examinations/re-testing as required by the Administration. When required, the cargo securing devices concerned should be subjected to inspections by the Administration.

（例如：常规的外观检查和保养，应由船长负责组织船上人员进行。应对每一种设备进行检查，以发现有损于精确、安全发挥其设计效用的损坏和磨损，以及其他可能导致人身伤害的缺陷。如发现有永久变形和破损，原则上该设备应报废。）

2.3.2 本条应包括用文件证明船舶对货物系固设备的检查和维护。每条记录应附在货物系固手册里。该记录应包括下列信息：This sub-chapter should document actions to inspect and maintain the ship's cargo securing devices. Entries should be made in a record book, which should be kept with the Cargo Securing Manual. This record book should contain the following information:

- .1 货物系固设备的验收、维修、修理或报废程序；procedures for accepting, maintaining and repairing or rejecting cargo securing devices; and
- .2 检查记录 record of inspections.

2.3.3 本条应向船长提供在航行途中检查与调整系固安排的资料。This sub-chapter should contain information for the master regarding inspections and adjustment of securing arrangements during the voyage.

2.3.4 本条可以使用电子版的维修保养程序。Computerized maintenance procedures may be referred to in this sub-chapter.

### 第三章 非标准货和半标准货的堆装与系固

# CHAPTER 3 STOWAGE AND SECURING OF NON-STANDARDIZED AND SEMI-STANDARDIZED CARGO

## 3.1 使用及安全须知 Handling and safety instructions

本条包含: This sub-chapter contain:

.1 系固设备的操作说明; instructions on the proper handling of the securing devices; and

.2 涉及系固装置操作及由船员或岸上人员对货物单元系固或解除系固的安全说明。

safety instructions related to handling of securing devices and to securing and unsecuring of units by ship or shore personnel.

(例如: 1、船员应在货物绑扎现场进行监督, 以防产生不正确的堆码和系固; 2、工作现场应保持有序, 在黑暗处应配以足够的照明; 3、工作现场的甲板和踏步应没有油污; 4、如果需要, 应配以足够数量的梯子; 5、开始操作前, 应由船员对工作现场进行检查, 以确认无障碍物存在, 并适合进行装卸作业; 6、船员和码头工人在进行作业时, 应思想集中, 并佩带必须的劳保用具, 如安全带、安全帽等。)

## 3.2 对作用在货物单元上力的估算 Evaluation of forces acting on cargo units

本章节应包含下列信息: This sub-chapter should contain the following information:

.1 表或图表, 显示在恶劣的海况条件下船上各个位置上预期的加速度的大概轮廓范围, 及适合的稳心高度值 (GM) 的范围。tables or diagrams giving a broad outline of the accelerations which can be expected in various positions on board the ship in adverse sea conditions and with a range of applicable metacentric height (GM) values;

.2 在上述段落 3.2.1 中, 当预期的加速度产生时, 作用在典型货物单元上的受力计算范例。examples of the forces acting on typical cargo units when subjected to the accelerations referred to in paragraph 3.2.1 and angles of roll and metacentric height (GM) values above which the forces acting on the cargo units exceed the permissible limit for the specified securing arrangements as far as practicable;

.3 如何计算为抵抗上述段落 3.2.2 中算出的作用力, 需要的可移动系固装置的强度及数量。计算可以根据“货物堆装及系固安全实施规则”(CSS Code, 英文全名 Code of Safe Practice for Cargo Stowage and Securing) 中的附录 13 进行或按主管机关接收的方法。examples of how to calculate number and strength of portable securing devices required to counteract the forces referred to in 3.2.2 as well as safety factors to be used for different types of portable cargo securing devices. Calculations may be carried out according to Annex 13 to the CSS Code or methods accepted by the Administration;

.4 建议货物系固手册的设计者对特定的船舶、及其系固装置和所载的货物的计算简化为一种固定计算方式。该方式包括适当的图表、表册、或计算范例。it is recommended that the designer of a Cargo Securing Manual converts the calculation method used into a form suiting the particular ship, its securing devices and the cargo carried. This form may consist of applicable diagrams, tables or calculated examples; and

.5 作为替代方案, 只要满足上述段落 3.2.1 到 3.2.4 的要求, 其他的操作安排, 如电子

数据处理 (EDP) 或装载计算机的使用可以接受, 只要这些系统中包含相同的信息。 other operational arrangements such as electronic data processing (EDP) or use of a loading computer may be accepted as alternatives to the requirements of the above paragraphs 3.2.1 to 3.2.4, providing that this system contains the same information.

### 3.3 在各种货物单元、车辆和堆装区的便携式系固设备的应用 Application of portable securing devices on various cargo units, vehicles and stowage blocks

3.3.1 本条应使船长注意正确使用便携式系固设备时, 考虑到的下列因素: This sub-chapter should draw the master's attention to the correct application of portable securing devices, taking into account the following factors:

- .1 航次的长短; duration of the voyage;
- .2 航行区域是否涉及便携式系固设备的最低安全工作温度; geographical area of the voyage with particular regard to the minimum safe operational temperature of the portable securing devices;
- .3 可能遇到的海况; sea conditions which may be expected;
- .4 船舶主尺度和特性; dimensions, design and characteristics of the ship;
- .5 可能遇到的静力和动力; expected static and dynamic forces during the voyage;
- .6 货物单元包括车辆的类型和包装; type and packaging of cargo units including vehicles;
- .7 可能采用的堆装形式; intended stowage pattern of the cargo units including vehicles; and
- .8 货物单元包括车辆的重量和体积。 mass and dimensions of the cargo units and vehicles.

3.3.2 本条应描述便携式系固设备的使用, 涉及系固的数量及允许的角度。如必要, 文字说明并辅以适当的图纸或草图以便正确理解, 在各种货物及货物单元上正确使用系固装置。应该指出的是, 一定的货物单元与其他的整体间应保持低摩擦状态, 在货物和甲板间放置软木板或其他防滑材料以增加摩擦力是明智的。 This sub-chapter should describe the application of portable cargo securing devices as to number of lashings and allowable lashing angles. Where necessary, the text should be supplemented by suitable drawings or sketches to facilitate the correct understanding and proper application of the securing devices to various types of cargo and cargo units. It should be pointed out that for certain cargo units and other entities with low friction resistance, it is advisable to place soft boards or other anti-skid material under the cargo to increase friction between the deck and the cargo.

3.3.3 本条应包括对下述货物的装载及系固的位置和方法提供指导: 集装箱、拖车及其挂车、托盘货物、单元载荷及独立货物 (如纸浆、纸卷等)、重货、汽车和其他车辆。 This sub-chapter should contain guidance as to the recommended location and method of stowing and securing of containers, trailers and other cargo carrying vehicles, palletized cargoes, unit loads and single cargo items (e. g. , woodpulp, paper rolls, etc.), heavy weight cargoes, cars and other vehicles.

### 3.4 滚装船的附加要求（不适用） Supplementary requirements for Ro-Ro ships (NA)

### 3.5 散货船 Bulk carriers

如果散货船装卸的货物为 SOLAS CVI/R5 或 CVII/R5 章所提及的货物，应根据主管机关认可的货物系固手册堆装和系固。 If bulk carriers carry cargo units falling within the scope of chapter VI/5 or chapter VII/5 of the SOLAS Convention, this cargo shall be stowed and secured in accordance with a Cargo Securing Manual, approved by the Administration.

## 第四章 集装箱与其他标准货物的堆装与系固

## CHAPTER 4 STOWAGE AND SECURING OF CONTAINERS AND OTHER

## STANDARDIZED CARGO

### 4.1 使用及安全须知 Handling and safety instructions

本章节应包含: This sub-chapter should contain:

- . 1 系固设备的操作说明; instructions on the proper handling of the securing devices; and
- . 2 涉及系固设备操作及由船员或岸上人员对集装箱和其他标准货物的系固或解固的安全说明。 safety instructions related to handling of securing devices and to securing and unsecuring of containers or other standardized cargo by ship or shore personnel.

### 4.2 堆装和系固方案 Stowage and securing instructions

本条适用于集装箱（不论是否处于分格导轨之中）和其他标准货物的堆装及系固系统。

在现有船上，涉及安全堆装及系固的相关文件可以集成到本章内。 This sub-chapter is applicable to any stowage and securing system (i.e. stowage within or without cellguides) for containers and other standardized cargo. On existing ships the relevant documents regarding safe stowage and securing may be integrated into the material used for the preparation of this chapter.

#### 4.2.1 堆装和系固方案 Stowage and securing plan

应有一份或一套明晰及易懂的图纸，内容包括: This sub-chapter should consist of a comprehensive and understandable plan or set of plans providing the necessary overview on:

- . 1 用纵、横向视图标出甲板上、下的集装箱位置 longitudinal and athwartship views of under deck and on deck stowage locations of containers as appropriate;
- . 2 不同尺寸的集装箱的替代堆装方式; alternative stowage patterns for containers of different dimensions;
- . 3 最大堆积数量; maximum stack masses;
- . 4 允许的垂向堆积分布; permissible vertical sequences of masses in stacks;
- . 5 批准的与视线有关的最大堆装的高度; maximum stack heights with respect to approved sight lines; and
- . 6 用适当的符号表示的相关堆装位置的系固设备的使用、堆数、堆装的顺序、堆高。在该货物系固手册里使用的符号要前后一致。 application of securing devices using suitable symbols with due regard to stowage position, stack mass, sequence of masses in stack and stack height. The symbols used should be consistent throughout the Cargo Securing Manual.

#### 4.2.2 甲板上、下的堆装和系固原则 Stowage and securing principle on deck and under deck

本条强调涉及集装箱堆装的堆装及系固图的理解，内容如下: This sub-chapter should support the interpretation of the stowage and securing plan with regard to container stowage, highlighting:

- . 1 特定装置的使用; the use of the specified devices; and
- . 2 所有参考或限制参数，如: 集装箱尺寸、最大堆装数、堆装顺序、受风影响的堆数、

堆高。any guiding or limiting parameters as dimension of containers, maximum stack masses, sequence of masses in stacks, stacks affected by wind load, height of stacks.

应该包含有特殊的警告关于错误使用系固装置或错误理解有关的说明可能导致的后果。It should contain specific warnings of possible consequences from misuse of securing devices or misinterpretation of instructions given.

#### 4.3 其他允许的堆装方式 other allowable stowage patterns

4.3.1 本条应给船长提供必要的信息以处理货物堆装情形偏离 4.2 章节描述的通用信息, 包括适当的警告关于错误使用系固装置或错误理解有关的说明可能导致的后果。This sub-chapter should provide the necessary information for the master to deal with cargo stowage situations deviating from the general instructions addressed under sub-chapter 4.2, including appropriate warnings of possible consequences from misuse of securing devices or misinterpretation of instructions given.

4.3.2 信息应包括: Information should be provided with regard to, inter alia:

.1 垂向堆装的替代顺序; alternative vertical sequences of masses in stacks;

.2 在没有外围堆叠时受风载荷影响的堆数; stacks affected by wind load in the absence of outer stacks;

.3 各种尺寸集装箱的替代堆装; alternative stowage of containers with various dimensions; and

.4 由于堆数减少、相对矮的堆高或其他原因而允许减少的绑扎数量。permissible reduction of securing effort with regard to lower stacks masses, lesser stack heights or other reasons.

#### 4.4 作用在货物单元上的外力 Forces acting on cargo units

4.4.1 本章节应展示基于堆装和系固系统的加速度的分布, 说明稳性的根本条件。应提供由海风或海浪诱发的作用力的信息。This sub-chapter should present the distribution of accelerations on which the stowage and securing system is based, and specify the underlying condition of stability. Information on forces induced by wind and sea on deck cargo should be provided.

4.4.2 应包含有关附加信息, 初稳性增加引起的力或加速度的增加。当初稳性过高不可避免时, 为降低货损的风险应给出建议, 限制甲板堆装的堆装数量或堆装高度。It should further contain information on the nominal increase of forces or accelerations with an increase of initial stability. Recommendations should be given for reducing the risk of cargo losses from deck stowage by restrictions to stack masses or stack heights, where high initial stability cannot be avoided.

## 第五章 货物安全通道布置

### CHAPTER 5 CARGO SAFE ACCESS PLAN (CSAP)

5.1 为了展示工作人员有安全通道进入进行集装箱加固作业, 专门设计或定制运输集装箱的船舶应该配有“货物安全通道布置”(CSAP)。该布置应详细说明其以安全的方式进行货物堆装和系固。该布置应包括下列人员工作的所有方面: Ships which are specifically designed and fitted for the purpose of carrying containers should be provided with a Cargo Safe Access Plan (CSAP) in order to demonstrate that personnel will have safe access for container securing operations. This plan should detail arrangements necessary for the conducting of cargo stowage and securing in a safe manner. It should include the following for all areas to be worked by personnel:

- .1 护栏; hand rails;
- .2 平台; platforms;
- .3 步行通道; walkways;
- .4 梯子; ladders;
- .5 通道盖; access covers;
- .6 设备存储位置; location of equipment storage facilities;
- .7 照明设备; lighting fixtures;
- .8 舱口盖/箱柱上集装箱堆列; container alignment on hatch covers/pedestals;
- .9 特殊集装箱的设备, 如冷藏箱的电源插头/插座; fittings for specialized containers, such as reefer plugs/receptacles;
- .10 急救站和应急通道/出口; first aid stations and emergency access/egress;
- .11 跳板; gangways; and
- .12 必要的安全通道的其他布置; any other arrangements necessary for the provision of safe access.

5.2 在“货物堆装及系固安全实施规则”(CSS Code) 附录 14 中所列的特殊要求。(略)  
Guidelines for specific requirements are contained in annex 14 to the CSS Code.

附件 1: 船上货物系固设备的更新记录 Annex 1: renewal record of securing devices

名称 name	数量 quantity	制造商 maker	证书号 Cert. No	日期 date	主管签名 signature
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