Guidelines for Carriage of Containers on Non-Container Vessels

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1. General Information

1.1. Introduction

1.1.1. The objective of this guideline is to give summarized information to shipowners about the technical aspects involved in the carriage of the containers on vessels other than a purpose-built container vessel.

1.1.2. In general, on vessels which are not purpose-built container vessels, container loading may be allowed subject to thorough verification of

i. Strength both global and local

ii. Stability and

iii. Other aspects stated in this guideline.

1.1.3. The document is divided in two parts i.e., container loading in cargo holds and on deck/hatch covers covering the respective technical aspects and documentation required to be submitted for review.

1.1.4. This guideline shall adhere to classification aspects only; and does not cover the regulatory or any other aspect(s) that may be involved. Ship-owners are to contact the respective Flag Administrations regarding applicable regulatory requirements, if any.

1.2. Scope

1.2.1 These guidelines shall be applicable for bulk carriers, general cargo carriers or similar construction vessels to be used for transportation of containers.

1.3. Rule Reference

1.3.1. Code of Safe Practice for Cargo Stowage and Securing (CSS code).

1.3.2. “Rules and Regulations for the Construction and Classification of Steel Ships” / “Rules and Regulations for the Construction and Classification of Inland Waterways Ships” (As applicable)

1.3.3. SOLAS (As applicable)

2. Container carriage in cargo holds

2.1. Strength assessment:

2.1.1. Container stacking in cargo hold shall lead to local loads in way of container corner sockets at the area of contact on the inner bottom/hatch/deck structure. However, in general, inner bottom are not designed for heavy concentrated, local loads. Hence, it is essential that plans indicating the relative location of container sockets superimposed on the inner bottom are submitted for local strength assessment.

2.1.2. Alternatively, (in lieu of 2.1.1), use of dunnage may be proposed for adequate load distribution in such a manner that the load intensity at any location does not exceed the design tank top strength of the vessel. The usage of dunnage's may be considered with the arrangement of the container stack behaving as a single solid cargo unit. Towards consideration of single unit, appropriate lashing and contact elements/spacers in between containers stacks to be provided such that there should not be any relative motion between containers stacks. Dunnage's/securing arrangement for the container bottom rail to be such that shifting of container can be restricted.

2.1.3. Dynamic loads to be calculated based on area of operation of the vessel viz. Inland, coastal, or unrestricted.

2.1.4. Permissible stress values to be as per applicable IRS Rules.

2.1.5. Loading manual to be revised indicating the still water bending moments (SWBM) and shear forces (SWSF) for each loading condition with containers. Global strength (as applicable) of the vessel shall be demonstrated to be satisfactory by comparison against the permissible values of SF and BM which the vessel has been designed for.

2.2. Stability Assessment

2.2.1. An addendum to the approved stability booklet to be submitted covering all container loading conditions.

2.2.2. Loading instrument if applicable is to be updated for computation of conditions. The updated system is to be submitted for approval.

2.2.3. In case of multi cargo hold vessels, if the containers and bulk cargoes are loaded simultaneously, corresponding loading/unloading sequences are to be prepared and submitted for review.

2.2.4. In case of any significant modification leading to significant alteration in lightship properties, inclining test to be performed and relevant stability booklet covering all loading conditions (bulk cargo as well as container loading) to be submitted for review.

2.3. Securing arrangement

2.3.1. All cargoes, other than solid bulk cargoes, are to be stowed and secured in accordance with the provision laid down by the Code of Safe Practice for Cargo Stowage and Securing (CSS code).

2.3.2. Accordingly, cargo securing manual is to be prepared as per the latest MSC.1/Circ. as amended (guidelines for the preparation of Cargo Securing Manual) and submitted for review.

2.3.3. In case, the cargo securing manual is already available for the vessel, the document is to be updated with the following:

- Annex 1 of the CSS code together with force calculation example for container securing for desired loading conditions.
- Details of portable and fixed securing devices for containers together with their certifications.

- Details in accordance with Chapter 4- *'Stowage and securing of containers and other standardized cargo'* of MSC.1/Cir. 1353, Rev 2, "Revised guidelines for the preparation of cargo securing manual"

2.4. Welding

2.4.1. Plan for permanent installation of equipment for securing of containers on deck/hatch covers is to be prepared and submitted for review. The plan is to contain details of the local reinforcements, where necessary.

2.4.2. Welding for installation of cargo securing equipment or local reinforcement under the deck sockets are to be carried out by approved/qualified welders using class-approved materials and welding consumables.

2.4.3. The installation shall be verified by the attending Surveyor based on the approved modification plan.

2.5. Other documentation:

2.4.1. Fire Safety Systems code requirements pertaining to fixed Carbon Dioxide (CO2), fire extinguishing systems in cargo hold, is to be complied with, for whips having gross tonnage more than 2000.

2.4.2. For the carriage of dangerous goods inside the containers, relevant requirements of Fire Safety Systems Code, SOLAS II-2/Reg. 10.7.3 and SOLAS II-2/Reg. 19 to be additionally complied with.

3. Container carriage on weather decks or on hatch covers

3.1 Strength assessment:

3.1.1. Similar approach to that indicated in 2.1 to be followed.

3.2. Stability assessment

3.2.1. In general, the standard on-deck container loading conditions, considering the windage area from the deck cargo, is to be added in the Loading manual as an addendum and submitted for approval. The onboard loading/stability computer is to be upgraded with an on-deck cargo module, to achieve the same results as the standard on-deck container loading conditions, in the approved addendum to the loading manual.

3.2.2. The computing accuracy of the upgraded stability computer, capable of considering windage area from the deck cargo, is to be verified

3.3. Securing arrangement

3.3.1. Similar approach as indicated in 2.3 to be followed.

3.4. Navigation bridge visibility

3.4.1. The plan for navigation bridge visibility is to be prepared /updated considering the loadable on-deck container stack height for standard container loading conditions and to be submitted for review.

3.4.2. The loading computer is also to be updated to evaluate the blind zone (distance) with on-deck containers stowed (As applicable).

3.5. Other documentation

3.5.1. Similar approach to that indicated in 2.4.2 to be followed.

4. Permanent Installation of equipment to carry containers

4.1. Cargo Safe Access Plan

4.1.1. Ships equipped with permanently fitted equipment for carrying containers, shall fall under “containership” as defined in Para.3.2, CSS Code Annex 14. Safe access plan shall be prepared, approved, and inserted into the CSM.

4.2. Welding

4.3.1. Similar approach to that indicated in 2.4 to be followed.

5. Annexure: List of plans required

1. Container carriage in cargo holds
    a. Container Stowage plan
    b. Container lashing arrangement.
    c. Double bottom structural plan indicating location of container shoes.
    d. Structural details in way of lashing/securing points.
    e. Cargo Securing Manual
    f. Loading manual covering container loading conditions.
    g. Intact & damage stability booklets covering container loading conditions.
    h. Fire control plan (if applicable)
2. Container carriage on decks/hatch cover
    a. Container Stowage plan
    b. Container lashing arrangement.
    c. Hatch cover/hatch coaming/deck structural plan indicating location of container shoes.
    d. Structural details in way of lashing/securing points.
    e. Cargo Securing Manual
    f. Loading manual covering container loading conditions.
    g. Intact & damage stability booklets covering container loading conditions.
    h. Navigation bridge visibility
    i. Cargo safe access plan (if applicable)