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关于实施散货船共同结构规范Rule Change Notice 2的通知

国际船级社协会（IACS）于2008年2月28日通过了Rule Change Notice (RCN) 2 for Bulker CSR——“散货船共同结构规范 RCN2”。

散货船共同结构规范 RCN2 的变化内容主要有结构设计原则中的结构布置原则、设计载荷中的船体梁载荷、其他结构中的尾部和上层建筑和甲板室以及营运船舶换新衡准中的船级的保持。

散货船共同结构规范的第 2 次规范修改（RCN2）于 2008 年 7 月 1 日生效，该规范修改适用于 2008 年 7 月 1 日及以后签订建造合同的 CSR 散货船，也可在 2008 年 7 月 1 日之前采用。

【注：本通函在本社网站（www.ccs.org.cn）上发布，并由各分社转发所辖区域内的相关船厂、船舶设计单位、船东】

附件1：Rule Change Notice (RCN) 2 for Bulker CSR 中、英文文本

附件：

中国船级社

钢质海船入级规范

2009 年修改通报

第 10 篇 散货船结构（CSR）

中国船级社上海规范研究所

2008 年 6 月

目录

第 3 章 结构设计原则

第 6 节 结构布置原则

9.5.2 修改如下：
9.5.2 应确保舱口端横梁与强肋骨的连接。舱口端横梁应与顶边舱横向强框架对齐。

9.5.3 修改如下：
9.5.3 纵向舱口围板应通过甲板下纵桁确保足够的强度连续性，以消除开口的影响。
在舱口角隅处，舱口围板位置处甲板下纵桁或其延伸部分与舱口端横梁应有效连接，以保证强度的连续性。

9.6.3 最后处增加“对于船长 L 为 150m 及以上的船舶，角隅半径、嵌入板的厚度及范围可以通过第 7 章第 2、3 节的直接计算强度评估，包括屈曲分析的结果以及第 8 章第 5 节的舱口角隅疲劳强度评估的结果来确定。”

第 4 章 设计载荷

第 3 节 船体梁载荷

2.1.2 中的“但就设计而言，对出港、到港和按[2.1.1]要求的所有工况和任一中间阶段工况，拟部分压载舱可假定为空舱和满舱进行校核。此外，指定的部分压载工况也应校核。”改为
“为验证满足空舱与满舱之间的所有压载水平，如果拟部分压载的压载舱在出港、到港和按[2.1.1]要求的任一中间工况假定为以下情况，将被认为是可接受的：

- 空舱
- 满舱
- 给定水平的部分压载

当有多个液舱拟部分压载时，这些液舱的所有空舱、满舱和给定水平的部分压载的所有组合都应考虑。”

新增 2.1.4 如下：
2.1.4 顺序法压载水交换
[2.1.2]和[2.1.3]的要求不适用于顺序法压载水交换。

第 9 章 其他结构

第 2 节 尾 部

5.1.3 中的“在挂舵臂与外壳交叉点和尖舱顶部之间，船体结构的垂直延伸应不小于挂舵臂的高度，其定义为从挂舵臂与外壳交叉点至下舵枢中点的距离。”改为“在挂舵臂与外壳交叉点和尖舱顶部之间，支撑挂舵臂的船体结构的垂直延伸应满足第 10 章第 1 节[9.2.6]和[9.2.7]的要求。”

第 4 节 上层建筑和甲板室

5 和 5.1.1 中的“上层建筑端壁和甲板室围壁”改为“上层建筑和甲板室端部舱壁”。

删除 5.3.1 中的“和剪切面积 A_{sh}，cm^2”。

第 13 章 营运船舶换新衡准

第 1 节 船级的保持

1.2.2 修改如下：

1.2.2 显著腐蚀

显著腐蚀系指通过腐蚀状况评估表明测量厚度在 $t_{renewal}$ 和 $t_{renewal}+t_{reserve}$ 之间的腐蚀程度。

Common Structural Rules for Bulk Carriers, January 2006

Rule Change Notice 2
February 2008

Notes: (1) This Rule change shall apply to ships contracted for construction on or after 1 July 2008. The Rule change may be adopted before 1 July 2008 at the discretion of the Society.

For technical background for Rule Changes in this present document, reference is made to separate document Technical Background for Rule Change Notice 2.

CHAPTER 3 – STRUCTURAL DESIGN PRINCIPLES

SECTION 6 STRUCTURAL ARRANGEMENT PRINCIPLES

9. Deck structure

9.5 Hatch supporting structure

9.5.2

~~Clear of openings, adequate continuity of strength of longitudinal hatch coamings is to be ensured by under deck girders.~~

The connection of hatch end beams to ~~longitudinal girders and~~ web frames is to be ensured. Hatch end beams are to be aligned with transverse web frames in top side tanks.

9.5.3

Clear of openings, adequate continuity of strength of longitudinal hatch coamings is to be ensured by under deck girders.

At hatchway corners, ~~the face plate of hatch coamings and longitudinal~~ deck girders or their extension parts provided under deck in line with hatch coamings and ~~the face plates of~~ hatch end beams ~~girders on both sides~~ are to be effectively connected so as to maintain the continuity in strength.

9.6 Openings in the strength deck

9.6.3 Corner of hatchways

For hatchways located within the cargo area, insert plates, whose thickness is to be determined according to the formula given after, are generally to be fitted in way of corners where the plating cut-out has a circular profile.

The radius of circular corners is to be not less than 5% of the hatch width, where a continuous longitudinal deck girder is fitted below the hatch coaming.

Corner radius, in the case of the arrangement of two or more hatchways athwartship, is considered by the Society on a case by case basis.

For hatchways located within the cargo area, insert plates are, in general, not required in way of corners where the plating cut-out has an elliptical or parabolic profile and the half axes of elliptical openings, or the half lengths of the parabolic arch, are not less than:

- 1/20 of the hatchway width or 600 mm, whichever is the lesser, in the transverse direction

- twice the transverse dimension, in the fore and aft direction.

Where insert plates are required, their net thickness is to be obtained, in mm, from the following formula:

$$t_{INS} = (0.8 + 0.4\ell / b)\, t$$

without being taken less than t or greater than $1.6t$

where:

ℓ : Width, in m, in way of the corner considered, of the cross deck strip between two consecutive hatchways, measured in the longitudinal direction (see Fig 23)

b : Width, in m, of the hatchway considered, measured in the transverse direction (see Fig 23)

t : Actual net thickness, in mm, of the deck at the side of the hatchways.

For the extreme corners of end hatchways, the thickness of insert plates is to be 60% greater than the actual thickness of the adjacent deck plating. A lower thickness may be accepted by the Society on the basis of calculations showing that stresses at hatch corners are lower than permissible values.

Where insert plates are required, the arrangement is shown in Fig 25, in which d_1, d_2, d_3 and d_4 are to be greater than the ordinary stiffener spacing.

For hatchways located outside the cargo area, a reduction in the thickness of the insert plates in way of corners may be considered by the Society on a case by case basis.

For ships having length L of 150 m or above, the corner radius, the thickness and the extent of insert plate may be determined by the results of a direct strength assessment according to Ch 7, Sec 2 and Sec 3, including buckling check and fatigue strength assessment of hatch corners according to Ch 8, Sec 5.

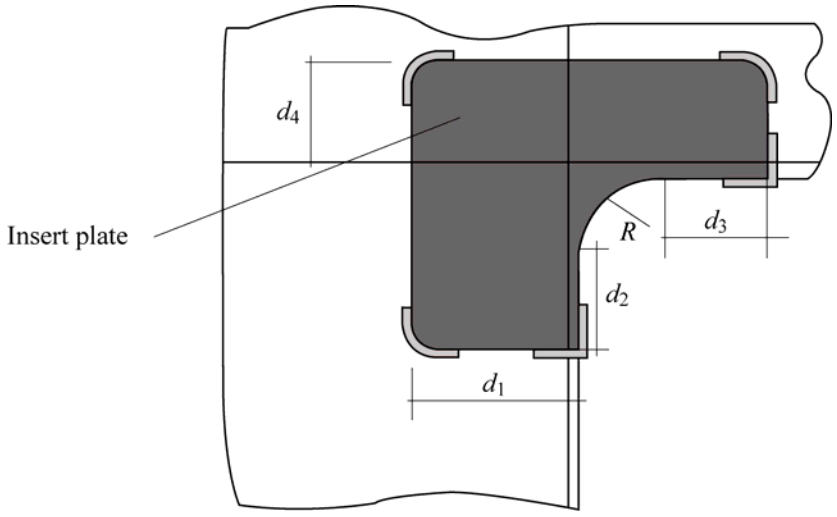

Figure 25: Hatch corner insert plate

CHAPTER 4 – DESIGN LOADS

SECTION 3 HULL GIRDER LOADS

2. Still water loads

2.1 General

2.1.2 Partially filled ballast tanks in ballast loading conditions

Ballast loading conditions involving partially filled peak and/or other ballast tanks at departure, arrival or during intermediate conditions are not permitted to be used as design conditions unless:

- design stress limits are satisfied for all filling levels between empty and full, and
- for **BC-A** and **BC-B** ships, longitudinal strength of hull girder in flooded condition according to Ch 5, Sec 1, [2.1.3] is complied with for all filling levels between empty and full.

~~However, for the purpose of design, it is acceptable if, in each condition at departure, arrival and, where required by [2.1.1], any intermediate condition, the tanks intended to be partially filled are assumed to be empty and full.~~

~~In addition, the specified partly filled level in the intended condition is to be considered.~~

To demonstrate compliance with all filling levels between empty and full, it will be acceptable if, in each condition at departure, arrival, and where required by [2.1.1], any intermediate condition, the tanks intended to be partially filled are assumed to be:

- empty
- full
- partially filled at intended level

Where multiple tanks are intended to be partially filled, all combinations of empty, full or partially filled at intended level for those tanks are to be investigated.

2.1.4 Sequential ballast water exchange

Requirements of [2.1.2] and [2.1.3] are not applicable to ballast water exchange using the sequential method.

CHAPTER 9 – OTHER STRUCTURES

SECTION 2 AFT PART

5. Connection of hull structures with the rudder horn

5.1 Connection of aft peak structures with the rudder horn

5.1.3 Hull structures

~~Between the horn intersection with the shell and the peak tank top, the vertical extension of the hull structures is to be not less than the horn height, defined as the distance from the horn intersection with the shell to the mid-point of the lower horn gudgeon.~~

The vertical extension of hull structure to support the rudder horn between the horn intersection with the shell and the peak tank top is in accordance with the requirements of Ch 10, Sec 1, [9.2.6] and [9.2.7].

The thickness of the structures adjacent to the rudder horn, such as shell plating, floors, platforms and side girders, the centreline bulkhead and any other structures, is to be adequately increased in relation to the horn scantlings.

SECTION 4 SUPERSTRUCTURES AND DECKHOUSES

5. ~~Superstructure end bulkheads and deckhouse walls~~ End bulkheads of superstructure and deckhouse

5.1 Application

5.1.1

The requirements in 5.2 and 5.3 apply to end bulkhead of superstructure and deckhouse ~~superstructure end bulkheads and deckhouse walls~~ forming the only protection for openings, are required by ILLC as amended, and for accommodation.

5.3 Scantling

5.3.1 Stiffeners

The section modulus w, in cm^3~~, and the shear area A_{sh}, in cm^2,~~ of the stiffeners is not to be less than the value obtained from the following formula:

$$w = 0.35kp_A s\ell^2$$

This requirement assume the webs of lowest tier stiffeners to be efficiently welded to the decks. Scantlings for other types of end connections may be specially considered.

The section modulus of deckhouse side stiffeners needs not to be greater than that of side frames on the deck situated directly below; taking account of spacing s and span ℓ.

CHAPTER 13 – SHIPS IN OPERATION, RENEWAL CRITERIA

SECTION 1 MAINTENANCE OF CLASS

1. General

1.2 Definitions

1.2.2 Substantial corrosion

Substantial corrosion is an extent of corrosion such that assessment of the corrosion pattern indicates a ~~wastage in excess of 75% of allowable margins but within acceptable limits~~ gauged (or measured) thickness between $t_{renewal}$ and $t_{renewal} + t_{reserve}$.

~~The allowable margin is the total corrosion addition t_C, as defined in Ch 3, Sec 3.~~