

Common Structural Rules for Bulk Carriers, January 2006

Background Document

CHAPTER 1 – GENERAL PRINCIPLES

NOTE:

- This TB is published to improve the transparency of CSRs and increase the understanding of CSRs in the industry.
- The content of the TB is not to be considered as requirements.
- This TB cannot be used to avoid any requirements in CSRs, and in cases where this TB deviates from the Rules, the Rules have precedence.
- This TB provides the background for the first version (January 2006) of the CSRs, and is not subject to maintenance.

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TABLE OF CONTENTS:

SECTION 1 – APPLICATION	5
1. GENERAL.....	5
1.1 Structural requirements.....	5
1.2 Limits of application to lifting appliances.....	5
1.3 Limits of application to welding procedures	6
2. RULE APPLICATION	6
2.1 Ship parts	6
2.2 Rules applicable to various ship parts.....	6
2.3 Rules applicable to other ship items.....	7
3. CLASS NOTATIONS	7
3.1 Additional service features BC-A, BC-B and BC-C	7
3.2 Additional class notation GRAB[X].....	7
3.3 Class notation CSR	7
SECTION 2 – VERIFICATION OF COMPLIANCE	8
1. GENERAL.....	8
1.1 New buildings	8
1.2 Ships in service.....	8
2. DOCUMENTATION TO BE SUBMITTED	8
2.1 Ships surveyed by the Society during the construction	8
2.2 Ships for which the Society acts on behalf of the relevant Administration.....	9
3. COMPUTER PROGRAMS	9
3.1 General	9
3.2 General programs.....	9
SECTION 3 – FUNCTIONAL REQUIREMENTS	10
1. GENERAL.....	10
1.1 Application.....	10
1.2 Design life.....	10
1.3 Environmental conditions	10
1.4 Structural safety	10
1.5 Structural accessibility.....	10
1.6 Quality of construction.....	10
2. DEFINITION OF FUNCTIONAL REQUIREMENTS	11
2.1 General	11
2.2 Structural strength.....	11
2.3 Coating	11
2.4 Corrosion addition	11
2.5 Means of access	11
2.6 Construction quality procedures.....	12
3. OTHER REGULATIONS	12
3.1 International regulations	12
3.2 National regulations.....	12
4. WORKMANSHIP.....	12
4.1 Requirements to be complied with by the manufacturer	12

4.2	Quality control.....	12
5.	STRUCTURAL DETAILS.....	12
5.1	Details in manufacturing documents	12
SECTION 4 – SYMBOLS AND DEFINITIONS		13
1.	PRIMARY SYMBOLS AND UNITS.....	13
1.1	13
2.	SYMBOLS.....	13
2.1	Ship’s main data	13
2.2	Materials	13
2.3	Loads	13
2.4	Scantlings.....	13
3.	DEFINITIONS.....	13
3.1	Rule length.....	13
3.2	Freeboard length.....	14
3.3	Ends of rule length L and midship	14
3.4	Moulded breadth.....	14
3.5	Depth	14
3.6	Moulded draught	14
3.7	Lightweight	15
3.8	Deadweight	15
3.9	Freeboard deck	15
3.10	Bulkhead deck	15
3.11	Strength deck.....	15
3.12	Superstructure	15
3.13	Forecastle.....	15
3.14	Raised quarterdeck	15
3.15	Deckhouse	16
3.16	Trunk	16
3.17	Wash bulkhead	16
3.18	Standard height of superstructure.....	16
3.19	Type A and Type B ships.....	16
3.20	Positions 1 and 2.....	16
4.	REFERENCE CO-ORDINATE SYSTEM.....	17
4.1	Reference co-ordinate system.....	17

SECTION 1 – APPLICATION

1. GENERAL

1.1 Structural requirements

1.1.1

1.1.1.a These regulations clearly define the application to Common Structural Rules for Bulk Carriers.

1.1.2

1.1.2.a The ships to which Part CSR-B applies are clearly defined. As stated in the rules, the regulations apply to typical bulk carriers of length 90 m and greater having a double bottom structure in the cargo holds, topside tanks and bilge hopper tanks, and side structure of single skin or double skin construction. Bulk carriers to which Part CSR-B applies and bulk carriers to which Chapter 12 of the SOLAS Convention applies are different as was understood when the original draft of the CSR was prepared because priority was given to developing common structural rules first, and so, only typical bulk carriers were considered. These regulations also apply to bulk carriers with topside tanks and bilge hopper tanks in a part of the cargo area, with no topside tanks and bilge hopper tanks in the remaining part of the cargo area.

1.1.3

1.1.3.a From ships that comply with IACS UR S11, ships of length $L < 500$ m were corrected to realistic values ($L < 350$ m).

1.1.4

1.1.4.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

1.1.5

1.1.5.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

1.1.6

1.1.6.a It is only required that the scantling draft is required to be greater than the draft corresponding to the specified freeboard.

1.2 Limits of application to lifting appliances

1.2.1

1.2.1.a This regulation is based on the regulation in 1.2, Sec. 1, Chapter 1, Part B of the RINA Rules.

1.2.2

1.2.2.a This regulation is based on the regulation in 1.2, Sec. 1, Chapter 1, Part B of the RINA Rules.

1.2.3

1.2.3.a This regulation is based on the regulation in 1.2, Sec. 1, Chapter 1, Part B of the RINA Rules.

1.3 Limits of application to welding procedures

1.3.1

1.3.1.a This regulation is based on the regulation in 1.1, Sec. 1, Chapter 12, Part B of the RINA Rules.

2. RULE APPLICATION

2.1 Ship parts

2.1.1 General

2.1.1.a The regulations from 2.1 to 2.3 are based on the regulations of 2.1 to 2.3, Sec. 1, Chapter 1, Part B, of the RINA Rules. The structure in the forward part is defined as structure forward of the collision bulkhead in principle, but the scope of applicability of the structural regulations for slamming of the forward bottom and bow flare extends also to the structural parts aft of the collision bulkhead. To avoid duplication and for convenience, the regulations are included in those for the forward part.

2.1.2 Fore part

2.1.2.a The regulations are based on the regulations of 2.1 to 2.3, Sec. 1, Chapter 1, Part B, of the RINA Rules.

2.1.3 Central part

2.1.3.a The regulations are based on the regulations of 2.1 to 2.3, Sec. 1, Chapter 1, Part B, of the RINA Rules.

2.1.4 Aft part

2.1.4.a The regulations are based on the regulations of 2.1 to 2.3, Sec. 1, Chapter 1, Part B, of the RINA Rules.

2.2 Rules applicable to various ship parts

2.2.1

2.2.1.a The regulations are based on the regulations of 2.1 to 2.3, Sec. 1, Chapter 1, Part B, of the RINA Rules.

2.3 Rules applicable to other ship items

2.3.1

2.3.1.a The regulations are based on the regulations of 2.1 to 2.3, Sec. 1, Chapter 1, Part B, of the RINA Rules.

3. CLASS NOTATIONS

3.1 Additional service features BC-A, BC-B and BC-C

3.1.1

3.1.1.a This regulation incorporates the regulation of IACS UR S25, 3.

3.1.2

3.1.2.a This regulation incorporates the regulation of IACS UR S25, 3.

3.1.3

3.1.3.a This regulation incorporates the regulation of IACS UR S25, 3.

3.2 Additional class notation GRAB[X]

3.2.1 Application

3.2.1.a This regulation was set with the aim of achieving consistency with 6.5.1, Chapter 12 of the SOLAS Convention. The minimum mass of the grab is taken as 20 tons. The strength requirement for impact load of grab specified in Chapter 12 of the Rules must be satisfied. The minimum mass of grab of 20 tons is based on the results of studies on the mass of grabs used for loading/unloading cargoes (ore, coal, chips, etc.) in ports.

3.3 Class notation CSR

3.3.1 Application

3.3.1.a This regulation has been specified so as to clearly define the class notation.

SECTION 2 – VERIFICATION OF COMPLIANCE

1. GENERAL

1.1 New buildings

1.1.1

1.1.1.a This regulation is based on the regulations of 2, Section 1, Chapter 2, Part A of the RINA Rules.

1.1.2

1.1.2.a This regulation is based on the regulations of 2, Section 1, Chapter 2, Part A of the RINA Rules.

1.1.3

1.1.3.a This regulation is based on the regulations of 2, Section 1, Chapter 2, Part A of the RINA Rules.

1.1.4

1.1.4.a This regulation is based on the regulations of 2, Section 1, Chapter 2, Part A of the RINA Rules.

1.2 Ships in service

1.2.1

1.2.1.a This regulation is based on the regulations of 2, Section 1, Chapter 2, Part A of the RINA Rules.

2. DOCUMENTATION TO BE SUBMITTED

2.1 Ships surveyed by the Society during the construction

2.1.1 Plans and documents to be submitted for approval

2.1.1.a These regulations are based on the regulations in 1, Section 3, Chapter 1, Part B of the RINA Rules. The information to be included and shown in Table 1 of the rules is essential when examining the drawings. The information need not necessarily be shown in the drawings; it may be stated in the calculations related to the relevant drawings.

2.1.2

2.1.2.a These regulations are based on the regulations in 1, Section 3, Chapter 1, Part B of the RINA Rules.

2.2 Ships for which the Society acts on behalf of the relevant Administration

2.2.1 Plans and documents to be submitted for approval

2.2.1.a These regulations are based on the regulations in 1, Section 3, Chapter 1, Part B of the RINA Rules.

3. COMPUTER PROGRAMS

3.1 General

3.1.1

3.1.1.a This regulation is the same as the regulations given in the RINA Rules. Classification societies verify the accuracy of computer program used, but do not approve them as general-purpose programs.

3.2 General programs

3.2.1

3.2.1.a This regulation is the same as the regulations given in the RINA Rules.

3.2.2

3.2.2.a This regulation is the same as the regulations given in the RINA Rules.

3.2.3

3.2.3.a This regulation is the same as the regulations given in the RINA Rules.

SECTION 3 – FUNCTIONAL REQUIREMENTS

1. GENERAL

1.1 Application

1.1.1

- 1.1.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

1.2 Design life

1.2.1

- 1.2.1.a This regulation is based on the functional requirements specified in the Tier II.1 and II.9 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

1.3 Environmental conditions

1.3.1

- 1.3.1.a This regulation corresponds to the functional requirements specified in the Tier II.2 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

1.4 Structural safety

1.4.1

- 1.4.1.a This regulation is based on the functional requirements specified in the Tier I of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

1.5 Structural accessibility

1.5.1

- 1.5.1.a This regulation corresponds to the functional requirements specified in the Tier II.14 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

1.6 Quality of construction

1.6.1

- 1.6.1.a This regulation corresponds to the functional requirements specified in the Tier II.11 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

2. DEFINITION OF FUNCTIONAL REQUIREMENTS

2.1 General

2.1.1

- 2.1.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

2.2 Structural strength

2.2.1

- 2.2.1.a This regulation corresponds to the functional requirements specified in the Tier II.3 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

2.2.2

- 2.2.2.a This regulation corresponds to the functional requirements specified in the Tier II.5 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

2.2.3

- 2.2.3.a This regulation corresponds to the functional requirements specified in the Tier II.4 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

2.3 Coating

2.3.1

- 2.3.1.a This regulation corresponds to the functional requirements specified in the Tier II.6.1 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

2.4 Corrosion addition

2.4.1

- 2.4.1.a This regulation corresponds to the functional requirements specified in the Tier II.6.2 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

2.5 Means of access

2.5.1

- 2.5.1.a This regulation corresponds to the functional requirements specified in the Tier II.14 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006 and SOLAS, CHII-1, Reg. 3-6.

2.6 Construction quality procedures

2.6.1

- 2.6.1.a This regulation corresponds to the functional requirements specified in the Tier II of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

3. OTHER REGULATIONS

3.1 International regulations

3.1.1

- 3.1.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.2 National regulations

3.2.1

- 3.2.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

4. WORKMANSHIP

4.1 Requirements to be complied with by the manufacturer

4.1.1

- 4.1.1.a This regulation corresponds to the functional requirements specified in the Tier II of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

4.2 Quality control

4.2.1

- 4.2.1.a This regulation is based on the functional requirements specified in the Tier II.11 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

5. STRUCTURAL DETAILS

5.1 Details in manufacturing documents

5.1.1

- 5.1.1.a This regulation is based on the functional requirements specified in the Tier II.11 of "Goal Based Standards" discussed at the IMO and approved tentatively at the 81st meeting of the Maritime Safety Committee in May 2006.

SECTION 4 – SYMBOLS AND DEFINITIONS

1. PRIMARY SYMBOLS AND UNITS

1.1

1.1.1

1.1.1.a Definitions of general symbols and units used in the Rules are specified.

2. SYMBOLS

2.1 Ship's main data

2.1.1

2.1.1.a Definitions of ship main data are specified.

2.2 Materials

2.2.1

2.2.1.a Definitions of symbols used for the characteristics of materials are specified.

2.3 Loads

2.3.1

2.3.1.a Definitions of symbols used for loads and moments are specified.

2.4 Scantlings

2.4.1 Hull girder scantlings

2.4.1.a Definitions of symbols used for the hull girder scantlings are specified.

2.4.2 Local scantlings

2.4.2.a Definitions of symbols used for the local scantlings are specified.

3. DEFINITIONS

3.1 Rule length

3.1.1

3.1.1.a The definition is in accordance with IACS UR S2.

3.1.2

3.1.2.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.1.3

- 3.1.3.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.2 Freeboard length

3.2.1

- 3.2.1.a The definition is in accordance with International Convention of Load Line.

3.2.2

- 3.2.2.a The definition is in accordance with International Convention of Load Line.

3.3 Ends of rule length L and midship

3.3.1 Fore end

- 3.3.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.3.2 Midship

- 3.3.2.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.3.3 Midship part

- 3.3.3.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.4 Moulded breadth

3.4.1

- 3.4.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.5 Depth

3.5.1

- 3.5.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.6 Moulded draught

3.6.1

- 3.6.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.7 Lightweight

3.7.1

3.7.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.8 Deadweight

3.8.1

3.8.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.9 Freeboard deck

3.9.1

3.9.1.a The definition is in accordance with International Convention of Load Line.

3.10 Bulkhead deck

3.10.1

3.10.1.a The definition is in accordance with International Convention for the Safety of Life at Sea.

3.11 Strength deck

3.11.1

3.11.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.12 Superstructure

3.12.1 General

3.12.1.a The definition is in accordance with International Convention of Load Line.

3.12.2 Enclosed and open superstructure

3.12.2.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.13 Forecastle

3.13.1

3.13.1.a The definition is in accordance with International Convention of Load Line.

3.14 Raised quarterdeck

3.14.1

3.14.1.a The definition is in accordance with International Convention of Load Line.

3.15 Deckhouse

3.15.1

3.15.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.16 Trunk

3.16.1

3.16.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.17 Wash bulkhead

3.17.1

3.17.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

3.18 Standard height of superstructure

3.18.1

3.18.1.a The definition is in accordance with International Convention of Load Line.

3.19 Type A and Type B ships

3.19.1 Type A ship

3.19.1.a The definition is in accordance with International Convention of Load Line.

3.19.2 Type B ship

3.19.2.a The definition is in accordance with International Convention of Load Line.

3.19.3 Type B-60 ship

3.19.3.a The definition is in accordance with International Convention of Load Line.

3.19.4 Type B-100 ship

3.19.4.a The definition is in accordance with International Convention of Load Line.

3.20 Positions 1 and 2

3.20.1 Position 1

3.20.1.a The definition is in accordance with International Convention of Load Line.

3.20.2 Position 2

3.20.2.a The definition is in accordance with International Convention of Load Line.

4. REFERENCE CO-ORDINATE SYSTEM

4.1 Reference co-ordinate system

4.1.1

4.1.1.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.

4.1.2

4.1.2.a It is considered that for this topic, no information in addition to that shown in the Rules is necessary to explain the background.