

**RULES  
FOR THE CLASSIFICATION OF  
SHIPS**

*Part 5 – SUBDIVISION  
January 2020*

*Amendments No. 1  
January 2022*

**CROATIAN REGISTER OF SHIPPING**

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By the decision of the General Committee of Croatian Register of Shipping,

Amendments No. 1 to the  
**RULES FOR THE CLASSIFICATION OF SHIPS**  
Part 5 – SUBDIVISION

have been adopted on 20th December 2021 and shall enter into force on 1st January 2022

## **INTRODUCTORY NOTES**

These amendments shall be read together with the requirements in the Rules for the Classification of Ships, Part 5 – Subdivision, edition January 2020.

Table 1 contains review of amendments, where items changed or added in relating to previous edition are given, with short description of each modification or addition. All major changes throughout the text are shaded.

This Part of the Rules includes the requirements of the following international Organisations:

**International Maritime Organization (IMO)**

**Conventions:** International Convention for the Safety of Life at Sea 1974 (SOLAS 1974) and all subsequent amendments up to and including the 2018 amendments (MSC.436(99))  
 Protocol of 1988 relating to the International Convention for the Safety of Life at Sea 1974, as amended (SOLAS PROT 1988).  
 International Convention on Load Lines, 1966, and Protocol of 1988, as amended up to and including the 2012 amendments (MSC. 345(91)).  
 International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 thereto (MARPOL 73/78) and all subsequent amendments up to and including the 2011 amendments (MEPC.201(62)).

**Resolutions:** MSC.235(82), as amended by MSC.335(90); MSC.421(98); MSC.436(99)

**Codes:** International Code of Safety for High-Speed Craft (HSC Code), MSC.36(63), MSC.97(73)  
 Code of Safety for Dynamically Supported Craft, A.373(X)  
 Code of Safety for Special Purpose Ships, 2008, MSC.266(84)

**International Association of Classification Societies (IACS)**

**Unified Interpretations:** CC7; LL 63(Rev.2, 2008); LL 65(Rev.2, 2008); LL 69(Rev.1, 2008); LL 75(Rev.1, 2009); MPC93 (Rev.1, 2016); SC 161(Rev.1, 2008)

**Recommendations (Rec.):** No.110 (Rev.2, Mar 2021)

**EU Directives:** Directive 2003/25/EC of the European Parliament and of the Council of 14 April 2003 as amended by Commission Directive 2005/12/EC of 18 February 2005

**TABLE 1 – REVIEW OF AMENDMENTS**

This review comprises amendments in relation to the Rules for the Classification of Ships, Part 5 – Subdivision, edition January 2020.

<i>ITEM</i>	<i>DESCRIPTION OF THE AMENDMENTS</i>
<b>SECTION 9 TANKERS</b>	
Head 9.7	Items 9.7.4, 9.7.5 and 9.7.7 have been amended in order to include provisions of IACS No.110 (Rev.2, Mar 2021)

**PART 5**

## AMENDMENTS No. 1

**9 TANKERS**

■ **Head 9.7 DAMAGE STABILITY VERIFICATION OF PARTICULAR LOADING CASE ON NEW TANKERS**, items 9.7.4 and 9.7.5 have been amended and should be read as follows:

**9.7.4 Matrix of permissible loading conditions**

In the absence of stability software and KG/GM limit curve(s), in lieu of approved specific loading conditions, a matrix clearly listing the allowable range of loading parameters (draft, trim, KG, cargo loading pattern and SG) that the vessel is allowed to load in order to be in compliance with the applicable intact and damage stability criteria can be developed for the stability booklet when a greater degree of flexibility than that afforded by approved specific loading conditions is needed. **If this information is to be used it shall be in an approved form.**

**9.7.5 KG/GM Limit Curve(s) \***

**Where KG/GM limit curves are provided, a systematic investigation of damage survival characteristics shall be undertaken by making calculations to obtain the minimum required GM or maximum allowable KG at a sufficient number of draughts within the operating range to permit the construction of a series of curves of "required GM" or "allowable KG" in relation to draught and cargo tank content in way of the damage. The curves shall be sufficiently comprehensive to cover operational trim requirements.**

The verification of KG/GM limit curves shall be conducted without any free surface correction. The actual loading condition uses the free surface correction (see paragraph 6.5 of IACS Rec. No.110) when comparing actual and **KG/GM limit values.**

It is to be noted that any change of filling level, draught, trim, cargo density might have a major influence to the results of a damage case; therefore the following items shall be considered carefully for the calculation of the KG/GM limit curves:

- a) Intact and damage stability criteria applicable to the vessel;
- b) The maximum required damage extent and lesser extents of damage which provide the most severe damage cases;
- c) **Draught range of the vessel: when verifying the damage stability, according to MSC/Circ.406/Rev.1 and MSC.1/Circ.1537 the tropical freeboard needs to be considered, however, the fresh water allowance and tropical fresh water allowance need not be taken into account under MARPOL and IBC;**
- d) Trim range of the vessel (see paragraph 6.6 of IACS Rec. No.110);
- e) Full and empty cargo tanks;
- f) Partially filled cargo tanks (consideration of increments as necessary);
- g) Minimum tank fillings in tonnes if required;
- h) Maximum/minimum densities of cargoes; and
- i) Ballast tank filling levels as necessary to achieve compliance.

Damage stability calculations, on which the KG/GM limit curve(s) is(are) based, shall be performed at the design stage. The KG/GM limit curve(s) drawn out taking stability criteria (intact and damage) into account shall be inserted in the stability booklet.

■ **Head 9.7 DAMAGE STABILITY VERIFICATION OF PARTICULAR LOADING CASE ON NEW TANKERS**, item 9.7.7 has been amended and should be read as follows:

**9.7.7 Direct calculation onboard (Stability software)**

The use of stability software for stability calculations is not a class requirement. However, stability software installed onboard shall cover all stability requirements (intact and damage) applicable to the ship. The following types of stability softwares, if approved by a classification society (according to Appendix 5 to the *Rules for the classification of ships, Part 4 - Stability* or IACS UR L5, **Rev.4 June 2020**), are applicable for calculation of service loading conditions for tankers:

- .1 **Type 2: software calculating intact stability and checking damage stability on basis of a limit curve (e.g. for vessels applicable to SOLAS Part B-1 damage stability calculations, etc.) or checking all the stability requirements (intact and damage stability) on the basis of a limit curve; and**
- .2 **Type 3: software calculating intact stability and damage stability by direct application of pre-programmed damage cases based on the relevant Conventions or Codes for each loading condition (for some tankers, etc.).**

The software shall be approved by the **Register**. The **stability instrument** is not a substitute for the approved stability documentation, but used as a supplement to facilitate stability calculations.

\* To avoid difficulties associated with developing suitable KG/GM limit curves and their restriction on operational capacity it is recommended that an approved Type 3 stability software is fitted on board.

Damage stability of Type 3 stability software shall be based on a hull form model, that is, directly calculated from a full three-dimensional geometric model.

All damages, taking into account lesser damages, and variation of draft, cargo density, tank loading patterns and extents of tank filling shall be performed to ensure that for any possible loading condition the most onerous damages have been examined according to relevant stability criteria.

All applicable combinations of damage that are possible within the relevant MARPOL Convention / Codes (IBC, etc.) shall be performed. These are all damages within the maximum applicable damage extents for side, bottom and raking.

Lesser extent of damages shall be generated on the principle of reduction in any longitudinal, transverse or vertical extent; whilst maintaining adjacent (shared boundary) compartment logic, including L-shaped damages.

The methodologies for determining compliance with relevant stability criteria shall be as set out in above mentioned guidelines.