RULES
FOR THE CLASSIFICATION OF SHIPS

Part 2 – HULL
July 2020

Amendments No. 1
July 2021

CROATIAN REGISTER OF SHIPPING

Hrvatska (Croatia) • 21000 Split • Marasovića 67 • P.O.B. 187
Tel.: (...) 385 (0)21 40 81 11
Fax.: (...) 385 (0)21 35 81 59
E-mail: tech.coord@crs.hr
web site: www.crs.hr

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

Amendments No. 1 to the
RULES FOR THE CLASSIFICATION OF SHIPS
Part 2 – HULL

have been adopted on 28th June 2021 and shall enter into force on 1st July 2021

INTRODUCTORY NOTES

These amendments shall be read together with the requirements in the Rules for the Classification of Ships, Part 2 – Hull, edition July 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 2012 amendments (MSC.341(91), 342(91)) Protocol of 1988 relating to the International Convention for the Safety of Life at Sea 1974, as amended (SOLAS PROT 1988) International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1988 thereto (MARPOL 73/78) and all subsequent amendments up to and including the 2006 amendments ((MEPC.141(54))

International Association of Classification Societies (IACS)

Unified Requirements (UR):	F1 (Rev.1, 2002), F2 (Rev.2, 2012), M76 (2016), S1 (Rev.7, 2010), S1A (Rev.6, 2010), S2 (Rev.2, June 2019), S3 (Rev.1, 2010), S4 (Rev. 4, 2017), S5 (Rev.1, corr. 1, June 2019), S6 (Rev.8, 2015), S7 (Rev.4, 2010), S10 (Rev.6, Sep 2019), S11 (Rev.9, June 2019), S11A (2015), S12 (Rev.5, 2010), S13 (Rev.2, Corr.1, 2014), S14 (Rev.6, 2016), S17 (Rev.10, Mar 2019), S18 (Rev.10, Mar 2019), S19 (Rev.5, 2004), S20 (Rev.6, 2014), S22 (Rev.3, 2004), S23 (Rev.4, 2007), S28 (Rev.3, 2010), S31 (Rev.4, 2007), S33 (Rev.3, Feb 2020), S34 (2015), W31 (Rev.2, Dec 2019), Z8 (Rev.1, 1995), Z9 (Rev.2, 1997), Z10.1 (Rev.24, May 2019), Z10.2 (Rev. 36, May 2019), Z10.4 (Rev.16, May 2019)
Unified Interpretations (UI):	MPC94 (2008), SC93 (Rev.1, 2010), SC122 (Rev.1, Corr.1 2008), SC154 (2000), SC179 (Rev.2, 2011), SC180 (Rev.3, 2012), SC207 (Corr.2, Jan 2020), SC208 (Corr.2, 2009), SC209 (Rev.1, Dec 2019), SC210 (2006), SC223 (Rev.3, Corr.1, 2014), SC258 (2013), SC259 (Rev.1, Corr.1, 2014)
Recommendations (Rec.):	Rec. 20 (Rev.1, 2007), Rec. 83 (2003), Rec. 94 (2007), Rec. 97 (2007)
Other requirements:	Finnish-Swedish Ice Class Rules, 2017 Guidelines for the Application of the Finnish - Swedish Ice Class Rules, 14 November 2017

TABLE 1 – REVIEW OF AMENDMENTS

This review comprises amendments in relation to the Rules for the Classification of Ships, Part 2 – Hull, edition July 2020.

ITEM	*DESCRIPTION OF THE AMENDMENTS*
SECTION 1 GENERAL REQUIREMENTS	
Head 1.4	item 1.4.6.2.1 has been amended
Head 1.4	item 1.4.6.2.2 has been amended
Head 1.4	item 1.4.6.3.1 has been amended
Head 1.4	item 1.4.6.3.3 has been amended
SECTION 3 DESIGN LOADS	
Head 3.1	item 3.1.2 has been amended

1 GENERAL REQUIREMENTS

■ **Head 1.4 MATERIALS,** item 1.4.6.2.1 has been partly changed and should be read as follows:

1.4.6.2 Non-destructive testing (NDT) during construction (measure No.1 of 1.4.6.5)

Where non-destructive testing (NDT) during construction is required in 1.4.6.5, the NDT is to be in accordance with 1.4.6.2.1 and 1.4.6.2.2. Enhanced NDT as specified in 1.4.6.4.3.1(e) is to be out in accordance with an appropriate standard.

1.4.6.2.1 General

1.4.6.2.1.1 Ultrasonic testing (UT) in accordance with the *Rules for the classification of ships, Part 26 - Welding, Section 2.5* is to be carried out on all block-to-block butt joints of all upper flange longitudinal structural members in the cargo hold region. Upper flange longitudinal structural members include the topmost strakes of the inner hull/bulkhead, the sheer strake, main deck, coaming plate, coaming top plate, and all attached longitudinal stiffeners.

■ **Head 1.4 MATERIALS,** item 1.4.6.2.2 has been partly changed and should be read as follows:

1.4.6.2.2 Acceptance criteria of UT

1.4.6.2.2.1 Acceptance criteria of UT are to be in accordance with the *Rules for the classification of ships, Part 26 - Welding, Section 2.5.*

1.4.6.2.2.2 The acceptance criteria may be adjusted under consideration of the appertaining brittle crack initiation prevention procedure and where this is more severe than that found in the *Rules for the classification of ships, Part 26 - Welding, Section 2.5*, the UT procedure is to be amended accordingly to a more severe sensitivity.

■ **Head 1.4 MATERIALS,** item 1.4.6.3.1 has been partly changed and should be read as follows:

1.4.6.3.1 General

1.4.6.3.1.1 The procedure of the NDT is to be in accordance with the *Rules for the classification of ships, Part 26 - Welding, Section 2.5*, irrespective of the applicability clause for new- building in the *Rules for the classification of ships, Part 26 - Welding, Section 2.5.*

■ **Head 1.4 MATERIALS,** item 1.4.6.3.3 has been partly changed and should be read as follows:

1.4.6.3.3 Acceptance criteria of UT

1.4.6.3.3 Where UT is carried out, acceptance criteria of UT are to be in accordance the *Rules for the classification of ships, Part 26 - Welding, Section 2.5*, irrespective of the applicability clause for new-building in the *Rules for the classification of ships, Part 26 - Welding, Section 2.5.*

3 DESIGN LOADS

■ **Head 3.1 GENERAL,** item 3.1.2 has been partly changed and should be read as follows:

3.1.2 Definitions

3.1.2.1 Load centre:

a) For plates:
- vertical stiffening system:
  0,5 x stiffener spacing above the lower support of plate field, or lower edge of plate when the thickness changes within the plate field;
- horizontal stiffening system:
  midpoint of plate field.

b) For stiffeners and girders:
- centre of span *l*.

3.1.2.2 Definition of symbols:

v = ship's speed according to Section 1.2.6;

ρ_c = density of cargo as stowed, [t/m^3];

ρ = density of liquids, [t/m^3];

ρ = 1,025 t/m^3 for fresh and sea water;

z = vertical distance of the structure's load centre above base line, [m];

x = distance from aft end of length L, in [m];

C_b = block coefficient according to 1.2.6, but is not to be taken less than 0,60;

p_o = 2,1 $(C_b + 0{,}7) \cdot C_w \cdot C_L \cdot f$, [kN/m^2], basic external load for ;

C_w = $\frac{L}{25} + 4{,}1$, for $L < 90$ [m]

C_w = $10{,}75 - \left(\frac{300 - L}{100}\right)^{1,5}$, for $90 \le L \le 300$ m

C_w = 10, 75, for $300 < L \le 350$ m;

C_w = $10{,}75 - \left(\frac{L - 350}{150}\right)^{1,5}$, for $L > 350$ m;

C_L = $\sqrt{\frac{L}{90}}$, for $L < 90$ m;

C_L = 1,0, for $L \ge 90$ m;

f = 1 for shell plating and weather deck;

f = 0,75 for frames and deck beams;

f = 0,60 for web frames, stringers and grillage systems.

Note: For restricted service areas (navigational areas) these values for p_o may be decreased, as follows:

10% for service range 2

25% for service range 3

30% for service range 4 and 5

40% for service range 7 and 8