

RULES FOR HIGH SPEED CRAFT

GUIDANCE FOR HIGH SPEED CRAFT

Rules for High Speed Craft
Guidance for High Speed Craft

2023 AMENDMENT NO.2
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Rule No.73 / Notice No.67 22 December 2023

Resolved by Technical Committee on 27 July 2023

ClassNK
NIPPON KAIJI KYOKAI

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

RULES FOR HIGH SPEED CRAFT

RULES

2023 AMENDMENT NO.2

Rule No.73 22 December 2023

Resolved by Technical Committee on 27 July 2023

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

“Rules for high speed craft” has been partly amended as follows:

Amendment 2-1

Part 2 CLASS SURVEYS

Chapter 2 CLASSIFICATION SURVEYS

2.1 Classification Survey during Construction

2.1.5 Hydrostatic and Watertight Tests

Sub-paragraph (1) has been amended as follows.

In the Classification Survey during construction, hydrostatic tests, watertight tests, etc., are to be carried out in accordance with the following:

- (1) Hull and equipment
 - ~~(a) Hydrostatic tests or watertight tests are to be carried out after all work in connection with watertightness are completed but before painting, in accordance with the requirements specified in Table 2.2.1 Annex B2.1.5 in Part B of the Rules for the Survey and Construction of Steel Ships.~~
 - ~~(b) A part or all of the hose tests may be dispensed with at the discretion of the Society.~~
 - ~~(c) Watertight tests may be replaced by airtight tests at the discretion of the Society, provided that certain tanks designated by the Society are to be subjected to hydrostatic tests specified in Table 2.2.1, afloat.~~
- (2) Machinery
Hydrostatic, leakage or airtight tests are to be carried out as specified in each Chapter of **Part 9** in relation to the kind of machinery.

2.2 Classification Survey of Craft Not Built under Survey

2.2.2 Hydrostatic and Watertight Tests

Sub-paragraph (1) has been amended as follows.

In the Classification Survey prescribed in **2.2.1**, sea trials are to be carried out after hydrostatic tests and watertight tests carried out in accordance with the requirements in the following **(1)** and **(2)**, machinery to be made in good order, working pressure of boilers to be determined, safety valves to be adjusted and accumulation tests of boilers to be carried out. Except hydrostatic tests of boilers and pressure vessels of which important parts have been newly repaired, main steam pipes, and air tanks of which interior can-not be inspected, and tests for gas leakage of refrigerating machinery on board, tests and trials may be dispensed with at the discretion of the Society.

- (1) Double bottoms, both peaks, tanks, cofferdams and chain lockers located abaft the collision bulkhead, watertight bulkheads and shaft tunnels are to be tested as specified in ~~Table 2.2.1~~

2.1.5(1).

- (2) Hydrostatic, leakage or airtight tests are to be carried out as specified in each chapter in relation to the kind of machinery.

Table 2.2.1 has been deleted as follows.

~~Table 2.2.1 Hydrostatic Tests~~

No.	Tanks, spaces and so forth	Type of tests and their pressure/head	Notes
1	Double bottoms	Hydrostatic test with a head of water to the top of air pipe.	-
2	Deep tanks	Hydrostatic test with a head of water to the top of overflow pipe.	Where it is difficult to carry out the hydrostatic test on the berth with the specified test head, the test may be carried out at sea.
3	After peak and stern tube compartments	Hydrostatic test with a head of water to the load waterline. For parts above the load waterline, hose test with a pressure of water not less than 0.2 MPa in the hose.	Where they are used as tanks, tests as specified in Item 2 are to be carried out.
4	Fore peak		
5	Chain lockers located abaft the collision bulkhead	Hydrostatic test with a head of water to the top of chain lockers.	-
6	Shell plating		For shell plating corresponding to those of column No. 1 through No. 5, to be as specified in each corresponding column.
7	Watertight decks		For decks corresponding to those of column No. 2 through No. 5, to be as specified in each corresponding column.
8	Watertight bulkheads and recesses	Hose test with a pressure of water not less than 0.2 MPa in the hose.	When bounding deep tanks, fore peak, or after peak, to be as specified in each corresponding column.
9	Shaft tunnels and other watertight tunnels		
10	Hatchways with weathertight steel covers		To be tested in closed position.
11	Double plate rudders	Airtight test with a pressure of 0.05 MPa	-

~~Note:~~

~~Tests for the piping are to be as specified in 1.3.1(7), 1.3.2(11) and 1.3.2(13), Part 9 of the Rules.~~

Part 5 DESIGN LOADS

Chapter 2 DESIGN LOADS

2.6 Design Loads for Watertight Bulkheads and Deep Tanks

Paragraph 2.6.2 has been amended as follows.

2.6.2 Design Loads for Deep Tanks

The design loads for deep tanks (P_{DT}) are ~~not to be less than that~~ those obtained from the following ~~formula~~ formulae

(1) Sea Going Condition

$$P_{DT} = 10\rho C A_f h_D \text{ (kN/m}^2\text{)}$$

where:

ρ : The specific gravity of liquid which is intended to carry. However, where the value is less than 1, the specific gravity is to be taken 1.

C and A_f : As specified in **2.4.2** in this Chapter.

h_D : Vertical distance measured from the lower edge of the plates to the mid-point of the height between the top of tanks and the top of overflow pipes (m).

(2) Tank Test Condition

$$P_{DT} = 10 \cdot h_T \text{ (kN/m}^2\text{)}$$

where:

h_T : Test head specified in **Annex B2.1.5, Part B of the Rules for the Survey and Construction of Steel Ships** (m).

Part 6 SCANTLING DETERMINATION OF HULL CONSTRUCTION

Chapter 1 HULL CONSTRUCTION FOR STEEL OR ALUMINIUM ALLOYS CRAFT

1.5 Plating

Paragraph 1.5.3 has been amended as follows.

1.5.3 Scantling Determination of Plating

Thickness of plating is not to be less than that obtained from the following formula.

$$\frac{QS\sqrt{P}}{\sqrt{\sigma_{all}}} + C \text{ (mm)}$$

Where:

Q : As given by following.

For watertight bulkhead plating=: 15.8

For other plating=: 22.4

S : Spacing of longitudinals or stiffeners (m)

P : Design load specified in **Table 6.1.4** corresponding to ~~at~~ the kind of plating. Design loads specified in **Table 6.1.4** are to be in accordance with **Part 5 of this Rule** (kN/m^2).

σ_{all} : Allowable stress specified in **Table 6.1.4** (kN/m^2)

C : Corrosion margin corresponding to the material used as given by following.

For steels=: 1.0 (mm)

For aluminium alloys=: 0 (mm)

Table 6.1.4 has been amended as follows.

Table 6.1.4 Design Load and Allowable Stress

	P	$\sigma_{all}^{(1)}$
Bottom shell plating	P_B	$0.73\sigma_y$
Side shell plating	P_S	$0.73\sigma_y$
Deck plating	P_D	$0.73\sigma_y$
Deckhouse/superstructure bulkhead planting	P_H	$0.91\sigma_y$
Longitudinal watertight bulkhead planting	P_{WT}	$0.73\sigma_y$
Transverse watertight bulkhead planting	P_{WT}	$0.91\sigma_y$
Longitudinal deep tank bulkhead planting	P_{DT}	$0.73\sigma_y^{(2)}$
Transverse deep tank bulkhead planting	P_{DT}	$0.91\sigma_y^{(2)}$

Notes:

(1) σ_y is yield point or proof stress of the material used (N/mm^2)

(2) For tank test conditions of deep tanks, σ_{all} is to be $1.0\sigma_y$ (N/mm^2)

1.6 Longitudinals and Stiffeners

Paragraph 1.6.4 has been amended as follows.

1.6.4 Scantling Determination of Longitudinals and Stiffeners

Section modulus of longitudinals and stiffeners is not to be less than that obtained from the following formula.

$$\frac{83.3CSPl^2}{\sigma_{all}} \text{ (cm}^3\text{)}$$

where:

C : Safety factor for corrosion as given by following.

For steels: 1.1

For aluminium alloys: 1.0

S : Spacing of longitudinals or stiffeners (m)

P : Design load specified in **Table 6.1.5** corresponding to the kind of longitudinals or stiffeners. Design loads specified in **Table 6.1.5** are to be in accordance with **Part 5 of this Rule** (kN/m^2).

l : Span measured between the adjacent supports of stiffeners including the length of connection (m). Where girders are provided, l is the distance from the heel of end connection to the first girders or the distance between the girders.

σ_{all} : Allowable stress specified in **Table 6.1.5** (kN/m^2)

Table 6.1.5 has been amended as follows.

Table 6.1.5 Design Load and Allowable Stress

	P	$\sigma_{all}^{(1)}$
Bottom longitudinals	P_B	$0.73\sigma_y$
Bottom frames	P_B	$0.91\sigma_y$
Side longitudinals	P_S	$0.73\sigma_y$
Side frames	P_S	$0.91\sigma_y$
Longitudinal beams	P_D	$0.73\sigma_y$
Transverse beams	P_D	$0.91\sigma_y$
Stiffeners fitted on deckhouse/superstructure bulkheads	P_H	$0.91\sigma_y$
Longitudinals fitted on watertight bulkheads	P_{WT}	$0.73\sigma_y$
Stiffeners fitted on watertight bulkheads	P_{WT}	$0.91\sigma_y$
Longitudinals fitted on deep tank bulkheads	P_{DT}	$0.73\sigma_y^{(2)}$
Stiffeners fitted on deep tank bulkheads	P_{DT}	$0.91\sigma_y^{(2)}$

Notes:

(1) σ_y is yield point or proof stress of the material used (N/mm^2)

(2) For tank test conditions of deep tanks, σ_{all} is to be $1.0\sigma_y$ (N/mm^2)

1.7 Girders

1.7.1 Scantling Determination of Girders

Sub-paragraph -1 has been amended as follows.

1 Section modulus of girders supporting longitudinals or stiffeners is not to be less than that obtained from the following formula.

$$\frac{mCSPl^2}{\sigma_{all}} \text{ (cm}^3\text{)}$$

Where:

m : Coefficient as given in **Table 6.1.8**, according to the boundary condition of end connection.

C : Safety factor for corrosion as given by following.

For steels=: 1.1

For aluminium alloys=: 1.0

S : Breadth of the area supported by the girder (m)

P : Design load specified in **Table 6.1.7** corresponding to ~~at~~ the kind of girders. Design loads specified in **Table 6.1.7** are to be in accordance with **Part 5 of this Rule** (kN/m^2).

l : Span measured between the adjacent supports of girders (m).

σ_{all} : Allowed stress specified in **Table 6.1.7**.

2 Web sectional area of girder supporting stiffener is not less than the value obtained from the following formula.

$$\frac{nCSPl}{\tau_{all}} \text{ (cm}^2\text{)}$$

where:

n : Coefficient as given in **Table 6.1.8**, according to the boundary condition of end connection.

C , S , l and P : As specified in preceding -1.

τ_{all} : Allowed stress specified in **Table 6.1.7**.

Table 6.1.7 has been amended as follows.

Table 6.1.7 Design Load and Allowable Stress

	P	$\sigma_{all}^{(1)}$	$\tau_{all}^{(1)}$
Bottom girders	P_B	$0.73\sigma_y$	$0.42\sigma_y$
Bottom transverses	P_B	$0.91\sigma_y$	$0.53\sigma_y$
Side stringers	P_S	$0.73\sigma_y$	$0.42\sigma_y$
Wed frames	P_S	$0.91\sigma_y$	$0.53\sigma_y$
Deck girders	P_D	$0.73\sigma_y$	$0.42\sigma_y$
Deck transverses	P_D	$0.91\sigma_y$	$0.53\sigma_y$
Girders and transverses fitted on deckhouse/ superstructure bulkheads	P_H	$0.91\sigma_y$	$0.53\sigma_y$
Girders fitted on watertight bulkheads	P_{WT}	$0.73\sigma_y$	$0.42\sigma_y$
Transverses fitted on watertight bulkheads	P_{WT}	$0.91\sigma_y$	$0.53\sigma_y$
Girders fitted on deep tank bulkheads	P_{DT}	$0.73\sigma_y^{(2)}$	$0.42\sigma_y^{(3)}$
Transverses fitted on deep tank bulkheads	P_{DT}	$0.91\sigma_y^{(2)}$	$0.53\sigma_y^{(3)}$

Notes:

(1) σ_y is yield point or proof stress of the material used (N/mm^2)

(2) For tank test conditions of deep tanks, σ_{all} is to be $1.0\sigma_y$ (N/mm^2)

(3) For tank test conditions of deep tanks, τ_{all} is to be $0.58\sigma_y$ (N/mm^2)

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 1 January 2024.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date.
* “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
 - (1) such alterations do not affect matters related to classification, or
 - (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which **1.** and **2.** above apply.
4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:

This Procedural Requirement applies from 1 July 2009.

Part 9 MACHINERY INSTALLATIONS

Chapter 12 AUTOMATIC AND REMOTE CONTROL

12.1 General

12.1.1 Scope*

Sub-paragraph -4 has been deleted, and Sub-paragraph -3 has been amended as follows.

1 The requirements in this Chapter apply to the systems of automatic or remote control which are used to control the following machinery and equipment.

- (1) Main propulsion machinery (in this Chapter, propulsion generating set in electric propulsion ships are excluded),
- (2) Controllable pitch propeller
- (3) Steam generating set
- (4) Electric generating set (in this Chapter, propulsion generating set in electric propulsion ships are included)
- (5) Auxiliary machinery associated with machinery and equipment listed in (1) to (4)
- (6) Fuel oil systems
- (7) Bilge systems
- (8) Deck machinery

2 Where considered necessary by the Society, the requirements in this Chapter are correspondingly applied to the systems of automatic or remote control which are used for controlling machinery and equipment not listed in -1(1) to (8).

3 Computer based systems, including the hardware and software which constitute such systems, are to be in accordance with ~~Annex 18.1.1~~ **Chapters 1, 2 and 3, Part D X of the Rules for the Survey and Construction of Steel Ships** in addition to those specified in -1 and -2 above and throughout the rest of this chapter for design, construction, commissioning, maintenance, etc.

~~**4** The requirement in -3 above is not applicable to equipment mentioned below:~~

- ~~(1) navigating equipment specified in the **Rules for Safety Equipment**,~~
- ~~(2) radio installations specified in the **Rules for Radio Installations**,~~
- ~~(3) stability instruments, and~~
- ~~(4) loading computers.~~

12.1.2 Terminology

Terms used in this Chapter are defined as the requirements specified in **18.1.2, Part D of the Rules for the Survey and Construction of Steel Ships**.

Paragraph 12.1.3 has been amended as follows.

12.1.3 Drawings and Data*

Drawings and data to be submitted are generally as follows. ~~In cases where the Society deems it to be necessary, the submission of drawings and data other than those specified below may be requested.~~

- (1) Drawings and data for approval
(a) to (e) are omitted.)

- (f) ~~Drawings and data listed in 1.2(1), Annex 18.1.1, Part D of the Rules for the Survey and Construction of Steel Ships for computer based systems specified in 12.1.1-3. With respect to computer based systems which have been already approved by the Society in accordance with Chapter 8, Part 7 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use, only drawings and data on parts that differ from ship to ship need to be submitted. Other drawings and data deemed necessary by the Society.~~
- (2) Drawings and data for reference
~~Drawings and data listed in 1.2(2), Annex 18.1.1, Part D of the Rules for the Survey and Construction of Steel Ships for computer based systems specified in 12.1.1-3. With respect to computer based systems which have been already approved by the Society in accordance with Chapter 8, Part 7 of the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use, only drawings and data on parts that differ from ship to ship need to be submitted; this, however, excludes those specified in 1.2(2)(a) of the Annex. Other drawings and data deemed necessary by the Society.~~

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 July 2024.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date.
 * “contract for construction” is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of “contract for construction” of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.
2. The date of “contract for construction” of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a “series of vessels” if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:
 - (1) such alterations do not affect matters related to classification, or
 - (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.
3. If a contract for construction is later amended to include additional vessels or additional options, the date of “contract for construction” for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a “new contract” to which 1. and 2. above apply.
4. If a contract for construction is amended to change the ship type, the date of “contract for construction” of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:

This Procedural Requirement applies from 1 July 2009.

GUIDANCE FOR HIGH SPEED CRAFT

GUIDANCE

2023 AMENDMENT NO.2

Notice No.67 22 December 2023

Resolved by Technical Committee on 27 July 2023

“Guidance for high speed craft” has been partly amended as follows:

Part 2 CLASS SURVEYS

Chapter 1 GENERAL

1.1 Surveys

1.1.3 Occasional Surveys

Sub-paragraph (3) has been amended as follows.

For the occasional surveys specified in **1.1.3(5), Part 2 of the Rules**, the following is to be complied with:

((1) and (2) are omitted.)

(3) Crafts Using Low-flashpoint Fuels

- (a) For crafts that fall under the following **i) or ii)**, a survey is to be carried out to verify compliance with the requirements of **1.1.8, Part 1 of the Rules** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified:
 - i) Crafts which convert to using low-flashpoint fuels on or after 1 January 2017; or
 - ii) Crafts which, on or after 1 January 2017, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2017.
- (b) For ships that fall under the following **i) or ii)**, a survey is to be carried out to verify compliance with the requirements of **GF11.3.1-1, GF11.3.1-2, GF12.5.2-2 and GF15.10.1, Part GF of the Guidance for the Survey and Construction of Steel Ships** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified:
 - i) Ships which convert to using low-flashpoint fuels on or after 1 July 2019; or
 - ii) Ships which, on or after 1 July 2019, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 July 2019.
- (c) For ships that fall under the following **i) or ii)**, a survey is to be carried out to verify compliance with the requirements of **11.8.1, Part GF of the Rules for the Survey and Construction of Steel Ships** and **GF11.3.1-2, Part GF of the Guidance for the Survey and Construction of Steel Ships** before using low-flashpoint fuels or undertaking to use different low-flashpoint fuels than specified:
 - i) Ships which convert to using low-flashpoint fuels on or after 1 January 2024; or
 - ii) Ships which, on or after 1 January 2024, undertake to use low-flashpoint fuels different from those which they were originally approved to use before 1 January 2024.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 1 January 2024.