RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part GF Ships Using Low-Flashpoint Fuels

Rules for the Survey and Construction of Steel Ships
Part GF 2018 AMENDMENT NO.1
Guidance for the Survey and Construction of Steel Ships
Part GF 2018 AMENDMENT NO.1

Rule No.100 / Notice No.52 29 June 2018
Resolved by Technical Committee on 31 January 2018

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 THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part GF Ships Using Low-Flashpoint Fuels

2018 AMENDMENT NO.1

Rule No.100 29 June 2018

Resolved by Technical Committee on 31 January 2018

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

Rule No.100 29 June 2018
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the survey and construction of steel ships" has been partly amended as follows:

Part GF SHIPS USING LOW-FLASHPOINT FUELS

Chapter 11 FIRE SAFETY

11.3 Fire Protection (*IGF Code* 11.3)

11.3.1 General

Sub-paragraph -2 has been amended as follows.

2 Any boundary of accommodation spaces, service spaces, control stations, escape routes and machinery spaces, facing fuel tanks on open deck, are to be shielded by "*A*-60" class divisions. The "*A*-60" class divisions are to extend up to the underside of the deck of the navigation bridge, and any boundaries above that, including navigation bridge windows, are to have "*A*-0" class divisions~~.~~, except in cases where "*A*-0" class divisions are not deemed necessary by the Society. In addition, fuel tanks are to be segregated from cargo in accordance with the requirements of the International Maritime Dangerous Goods Code (*IMDG* Code) where the fuel tanks are regarded as bulk packaging. For the purposes of the stowage and segregation requirements of the *IMDG* Code, a fuel tank on the open deck is to be considered a *class* 2.1 package.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 29 June 2018.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part GF Ships Using Low-Flashpoint Fuels

GUIDANCE

2018 AMENDMENT NO.1

Notice No.52 29 June 2018

Resolved by Technical Committee on 31 January 2018

Notice No.52 29 June 2018
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Part GF SHIPS USING LOW-FLASHPOINT FUELS

Amendment 1-1

GF4 GENERAL REQUIREMENTS

Section GF4.2 has been added as follows.

GF4.2 Risk Assessment (*IGF Code* 4.2)

GF4.2.3 Analysis and Mitigation of Risk

In applying **4.2.3, Part GF of the Rules**, testing is to be carried out to confirm that risks are eliminated and/or mitigated in cases where deemed necessary by the Society based upon results of the risk assessments conducted in accordance with **4.2.1, Part GF of the Rules**.

GF14 ELECTRICAL INSTALLATIONS

GF14.3 General

Paragraph GF14.3.7 has been added as follows.

GF14.3.7 Low-liquid Level Alarm

With respect to the alarms and automatic shutdowns specified in **14.3.7, Part GF of the Rules**, testing is to be carried out to confirm their satisfactory operation.

GF15 CONTROL, MONITORING AND SAFETY SYSTEMS

GF15.2 Functional Requirements

Paragraph GF15.2.2 has been amended as follows.

GF15.2.2 Additional Requirements

1 In applying **15.2.2, Part GF of the Rules**, testing is to be carried out to confirm the satisfactory operation of the alarms and automatic shutdowns specified in **Table GF15.1, Part GF of the Rules**.

2 The wording "Failure of valve control actuating medium" specified in **Table GF15.1, Part GF of the Rules** includes failures of valve control actuating medium control systems.

Section GF15.4 has been added as follows.

GF15.4 Bunkering and Liquefied Gas Fuel Tank Monitoring

GF15.4.10 Protective Devices for Submerged Fuel-pump Motors

With respect to the alarms and automatic shutdowns specified in **15.4.10, Part GF of the Rules**, testing is to be carried out to confirm their satisfactory operation.

GF16 MANUFACTURE, WORKMANSHIP AND TESTING

GF16.7 Testing

Paragraph GF16.7.3 has been added as follows.

GF16.7.3 System Testing

In applying **16.7.3-7, Part GF of the Rules**, functional testing is to be carried out to confirm the closing time.

Annex 1 GUIDANCE FOR EQUIPMENT AND FITTINGS OF SHIPS USING LOW-FLASHPOINT FUELS

Chapter 12 INSULATION MATERIALS

12.3 Tests and Inspection

12.3.1 Tests and Inspection

By using the test specimens taken with due regard paid to the actual application procedures, tests to verify the test items given in **Table 12.1** are to be conducted by the test procedure as specified in the same Table or suitable other procedure as approved by the Society, and it is to be verified that the specifications and physical properties established by the manufacturer are complied with.

Table 12.1 has been amended as follows.

Table 12.1 Test Items for Insulation Materials

No.	Test item	Procedure of test
1	Compatibility with the cargo	Tensile, compression, shearing, bending test after dipping in the cargo (*DIN 53428*)
2	Solubility in the cargo	Changes in the size and weight of test specimen before and after dipping in the cargo (*DIN 53428*)
3	Absorption of the cargo	Comparison of weight of test specimen or test of water absorbing properties before and after dipping in the cargo (*DIN 53428*)
4	Shrinkage	*ISO 2796, ASTM D 2126*
5	Aging	~~*ASTM D 576* (Comparison of thermal conductivity before and after aging)~~
6	Closed cell content	*ISO 4590, ASTM ~~D 2856~~ D 6226*
7	Density	*ISO 845, ASTM D 1622*
8	Mechanical properties ・Bending strength ・Compression strength ・Tensile strength ・Shearing strength	 *ISO 1209, ASTM C 203, ASTM D790* *ASTM D 695, ASTM D 1621* *ISO 1926, EN 1607, ASTM D 638, ASTM D 1623* *ISO 1922, ASTM C 273*
9	Thermal expansion	*ASTM D 696, ASTM E 831*
10	Abrasion	－
11	Cohesion	~~—~~*ASTM D 1623*
12	Thermal conductivity	*ISO 8302, JIS A 1412, ASTM C 177, ASTM C 518*
13	Resistance to vibration	~~—~~*ISO 10055*
14	Resistance to fire and flame spread	~~*JIS A 9514,*~~ *JIS A 9511, DIN 4102*
15	Resistance to fatigue failure and crack propagation	－

Note:
Of those test items given above, necessary items are to be selected and tested depending on the insulation system. However, at least, the test items 4, 6 (for independent foam material only), 7, 8, 12 and 14 are to be dealt with for all the insulation systems. See **GF6.4.13-1** to **-4**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 29 June 2018.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships for which the date of contract for construction is before the effective date.

Amendment 1-2

GF10 POWER GENERATION INCLUDING PROPULSION AND OTHER GAS CONSUMERS

GF10.2 Functional Requirements

Paragraph GF10.2.2 has been amended as follows.

GF10.2.2 Additional Requirements

1 In applying **10.2.2-2, Part GF of the Rules**, air inlet manifolds and scavenge spaces which are not capable of withstanding a pressure 7 times the design pressure are to be provided with pressure relief systems.

2 In applying **10.2.2-2, Part GF of the Rules**, pressure relief systems are not to continuously discharge exhaust gas into enclosed spaces.

Annex 3 GUIDANCE FOR HIGH PRESSURE GAS-FUELLED ENGINES

Chapter 2 CONSTRUCTION AND EQUIPMENT OF HIGH PRESSURE GAS-FUELLED ENGINES

2.3 Safety Systems

Paragraph 2.3.2 has been amended as follows.

2.3.2 Protection Against Explosions

1 Relief valves approved in accordance with **Table D2.4, Part D of the Rules** are to be provided for crankcases.

2 Scavenge spaces and exhaust systems are to be fitted with suitable pressure relief systems unless designed to withstand the worst case overpressure due to ignited gas leaks.

3 The pressure relief systems specified in the preceding **-2** are not to continuously discharge exhaust gas into enclosed spaces. Venting due to activation of the system is to be led away from locations where personnel may normally be present.

~~**3**~~**4** Relief valves for cylinders installed in accordance with the requirements of **2.4.2, Part D of the Rules** are to be provided, as far as practicable, with monitoring systems to verify valve closing.

~~**4**~~**5** Engines having spaces under pistons that directly lead to crankcases are also to be in accordance with **10.3.1-2, Part GF of the Rules**.

Annex 4 GUIDANCE FOR LOW PRESSURE GAS-FUELLED ENGINES

Chapter 2 CONSTRUCTION AND EQUIPMENT OF LOW PRESSURE GAS-FUELLED ENGINES

2.3 Safety Systems

Paragraph 2.3.2 has been amended as follows.

2.3.2 Protection Against Explosions

1 Relief valves approved in accordance with **Table D2.4, Part D of the Rules** are to be provided for crankcases.

2 Suction manifolds and exhaust gas pipes are to be fitted with suitable pressure relief systems unless designed to withstand the worst case overpressure due to ignited gas leaks.

3 The pressure relief systems specified in the preceding **-2** are not to continuously discharge exhaust gas into enclosed spaces. Venting due to activation of the system is to be led away from locations where personnel may normally be present.

~~**3**~~**4** Relief valves for cylinders installed in accordance with the requirements of **2.4.2, Part D of the Rules** are to be provided, as far as practicable, with monitoring systems to verify valve closing.

~~**4**~~**5** Gas fuel injection lines are to be provided with non-return valves, and rupture disks are to be provided between gas fuel injection lines and non-return valves if necessary to prevent gas fuel injection line failure due to abnormal pressure peaks.

~~**5**~~**6** Flame arrestors are to be installed before cylinder heads in cases where gas is supplied in mixtures with air through common manifolds.

~~**6**~~**7** Engines having spaces under pistons that directly lead to crankcases are also to be in accordance with **10.3.1-2, Part GF of the Rules**.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 29 June 2018.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to pressure relief systems which are installed on ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.
(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

Amendment 1-3

GF11 has been added as follows.

GF11 FIRE SAFETY

GF11.3 Fire Protection (*IGF Code* 11.3)

GF11.3.1 General

The wording "not deemed necessary by the Society" in **11.3.1-2, Part GF of the Rules** refers to cases where the Administration has decided on the voluntary early implementation of the amendments in resolution *MSC*.422(98) in accordance with *MSC*.1/*Circ*.1568.

EFFECTIVE DATE AND APPLICATION (Amendment 1-3)

1. The effective date of the amendments is 29 June 2018.

Amendment 1-4

Annex 1 GUIDANCE FOR EQUIPMENT AND FITTINGS OF SHIPS USING LOW-FLASHPOINT FUELS

Chapter 1 GENERAL

Section 1.2 has been amended as follows.

1.2 Submission of Plans and Documents

In accordance with the requirements in **2.1.2-1(5)**, **2.1.3-1(~~9~~10)** and **2.1.3-2, Part B of the Rules**, the following plans and documents related to equipment, etc. as well as those specified in the following chapters of this annex and thereafter where appropriate are to be submitted to the Society.
(1) (Omitted)
(2) (Omitted)

EFFECTIVE DATE AND APPLICATION (Amendment 1-4)

1. The effective date of the amendments is 1 July 2018.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to windlasses for which the application for approval is submitted to the Society before the effective date and that are installed on 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.