RULES FOR CLASSIFICATION

Ships

Edition October 2015

Part 4 Systems and components

Chapter 11 Fire safety
FOREWORD

DNV GL rules for classification contain procedural and technical requirements related to obtaining and retaining a class certificate. The rules represent all requirements adopted by the Society as basis for classification.

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Any comments may be sent by e-mail to rules@dnvgl.com

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In this provision "DNV GL" shall mean DNV GL AS, its direct and indirect owners as well as all its affiliates, subsidiaries, directors, officers, employees, agents and any other acting on behalf of DNV GL.
CHANGES – CURRENT

This is a new document.
The rules enter into force 1 January 2016.
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SECTION 1 GENERAL

1 General

1.1 Objective

1.1.1 The rules of this chapter are intended to explain the fire safety regime for cargo and passenger ships.

1.2 Scope

1.2.1 The scope of this chapter is to define fire safety rules for cargo and passenger ships and to give principle guidance for the case that DNV GL is authorized to issue SOLAS safety certificates.

1.3 Application

1.3.1 Unless explicitly stated, the requirements of this chapter do not apply to:

— ships of war and troopships
— ships not propelled by mechanical means
— wooden ships of primitive build
— pleasure yachts not engaged in trade
— fishing vessels.

1.3.2 The requirements in Sec.2 apply to cargo ships of less than 500 gross tonnage assigned main class.

1.3.3 The requirements in Sec.3 apply to cargo ships of 500 gross tonnage and above and passenger ships assigned main class.

1.3.4 Supplementary requirements will be enforced for ship types and ships with additional class notations as required by the respective parts of the rules.

GUIDANCE NOTE:

Other requirements in Pt.1, Pt.2, Pt.3, RU SHIP Pt.4 and Pt.5 may apply in addition to these rules.

---e-n-d---o-f---g-u-i-d-a-n-c-e---n-o-t-e---

1.4 SOLAS safety certificates

1.4.1 It is the responsibility of the government of the flag state to ensure that ships are provided with the fire safety measures required by the International Convention for the Safety of Life at Sea, 1974, as amended (hereafter referred to as SOLAS) when such requirements apply.

1.4.2 Where the government of the flag state has authorised the Society to issue the SOLAS safety certificates on its behalf, the Society will give effect to the fire protection, detection and extinction requirements of Ch.II-2 of SOLAS.

1.4.3 The requirements in Sec.4 apply as the basis for stating compliance with Ch.II-2 of SOLAS and as part of the basis for the issue of SOLAS safety certificates. Compliance with requirements in Sec.4 will automatically result in compliance with requirements in Sec.3 for assignment of main class.
1.5 Definitions

1.5.1 For definitions, see SOLAS Ch.II-2 Reg.3.

1.6 Documentation required

1.6.1 Verification of design is based on review of plans and documentation containing relevant information elements.

1.6.2 Plans and documentation shall be submitted for review and approval stamping as required by Sec.2, Sec.3 and Sec.4 respectively depending on the Society’s scope of work.

1.6.3 Approval certificates issued by Administrations, incl. MED certificates, or by IACS Member Societies are generally accepted unless DNV GL approved equipment is expressly required or specific guidance is issued by the Flag Administration.

1.7 Applicable interpretations

1.7.1 Unified interpretations developed for cargo and passenger ships by IMO and IACS and DNV GL Statutory Interpretations shall be used, as applicable.
SECTION 2 FIRE SAFETY MEASURES FOR CARGO SHIPS OF LESS THAN 500 GROSS TONNAGE

1 General

1.1 Application

1.1.1 The requirements in this section apply to cargo ships of less than 500 gross tonnage assigned main class and intended for unrestricted service.

1.1.2 Where the government of the flag state has prescribed specific rules and regulations for fire safety measures, such rules and regulations may be considered as the basis for assignment of main class if providing a level of safety acceptable to the Society.

1.2 Documentation requirements

1.2.1 The Builder shall submit the documentation required by Table 1. The documentation will be reviewed by DNV GL as a part of the class contract.

Table 1 Documentation requirements for the builder

<table>
<thead>
<tr>
<th>Object</th>
<th>Documentation type</th>
<th>Additional description</th>
<th>Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural fire protection arrangements</td>
<td>G060 - Structural fire protection drawing</td>
<td></td>
<td>AP</td>
</tr>
<tr>
<td>Fire water system</td>
<td>S010 - Piping diagram (PD)</td>
<td></td>
<td>AP</td>
</tr>
<tr>
<td>Fire extinguishing systems in machinery spaces, fixed</td>
<td>G200 - Fixed fire extinguishing system documentation</td>
<td></td>
<td>AP</td>
</tr>
<tr>
<td>Escape routes</td>
<td>G120 - Escape route drawing</td>
<td></td>
<td>AP</td>
</tr>
<tr>
<td>Fire control plan</td>
<td>G040 - Fire control plan</td>
<td></td>
<td>AP</td>
</tr>
</tbody>
</table>

1.2.2 For general requirements for documentation, including definition of the info codes, see Pt.1 Ch.3 Sec.2.

1.2.3 For a full definition of the documentation types, see Pt.1 Ch.3 Sec.3.

1.2.4 For fire safety component and systems the following shall be submitted for approval or review:
— copies of the DNV GL type approval certificates, or
— fire test reports for the constructions and equipment which shall be used onboard, or
— type approval certificate issued by flag state (including MED as applicable).

1.2.5 Piping used in fire safety systems, shall unless stated otherwise, be in compliance with Ch.6.
2 Suppression of fire

2.1 Fire pumps

2.1.1 Ships above 150 gross tonnage shall be provided with at least one independent power driven fire pump.

2.1.2 Ships of 150 gross tonnage and below shall be provided with at least one power driven fire pump, which may be driven by the main engine.

2.1.3 The capacities of the main fire pump referred to in either [2.1.1] or [2.1.2] shall be as required for ships of 500 gross tonnage and above (ref. SOLAS Ch. II-2/10.2.2) but shall not be less than 25 m$^3$/hour and each such pump shall in any event be capable of delivering at least the two required jets of water. The pressure head of the main fire pump shall be so chosen that the requirements of SOLAS Ch. II-2/10.2.1.6 are met. Alternatively, on ships of less than 300 gross tonnage every nozzle shall be capable of delivering a water jet of at least 12 m length horizontally.

2.1.4 On ships above 150 gross tonnage an additional power driven fire pump shall be provided in a position outside the space containing the main fire pump. On ships less than 150 gross tonnage this pump can be hand-operated. The additional pump shall have sufficient capacity and pressure to provide a 6 m jet throw with nozzles not less than 9 mm diameter. The jet throw shall be capable of being directed on to any part of the ship. On ships of less than 100 GT no additional fire pump is required.

2.2 Fire mains and hydrants

2.2.1 The fire main shall have a diameter of sufficient size to maintain a steady distribution and pressure.

2.2.2 A sufficient number of fire hydrants shall be provided and so located that at least one jet of water can reach any normally accessible part of the ship. At least one hydrant shall be provided in the machinery space.

2.2.3 Not less than three (3) fire hoses of at least 15 m in length, complete with couplings and nozzles, shall be provided.

2.2.4 The nozzles shall be of dual purpose (spray/jet) type with 12 mm jet and integral shut-off. The jet may be reduced to 10 mm and shut-off omitted for ships with hand-operated fire pumps.

2.3 Fire extinguishers

2.3.1 Each powder or carbon dioxide extinguisher shall have a capacity of at least 5 kg and each foam extinguisher shall have a capacity of at least 9 L.

2.3.2 Not less than three (3) portable fire extinguishers shall be provided in the accommodation and service spaces.

2.3.3 Not less than two (2) portable fire extinguishers, suitable for extinguishing oil fires, shall be provided in each boiler room, cargo pump room and spaces containing any part of any oil fuel installation.

2.3.4 In machinery spaces containing internal combustion machinery, one (1) portable fire extinguisher shall be provided for every 375 kW of engine power, however, the total number shall not be less than two (2) and need not exceed six (6).
2.4 Fixed fire-extinguishing systems

2.4.1 For ships above 150 gross tonnage, a fixed fire-extinguishing system shall be provided in machinery spaces of category A and in cargo pump rooms. The system shall be as required for ships of 500 gross tonnage and above (ref. SOLAS Ch. II-2/10.4)

2.5 Cargo tank protection

2.5.1 Mobile foam applicators shall be provided on cargo tank decks.

2.6 Fire-fighter’s outfits

2.6.1 Ships above 150 gross tonnage shall be provided with at least two (2) complete sets of fire-fighter’s outfits stored in separate locations. Ships of 150 gross tonnage and below shall be provided with at least one (1) complete set of fire-fighter’s outfit.

2.6.2 The fire-fighter’s outfits shall be as required for ships of 500 gross tonnage and above (ref. SOLAS Ch. II-2/10.10).

2.7 Structural fire protection

2.7.1 Boundaries of the wheelhouse and of the machinery spaces shall be A-60 class against adjacent spaces. Where, in the opinion of the Society, the adjacent spaces are of negligible fire risk, the boundaries may be A-0 class.

2.7.2 Boundaries of escape routes shall be of B-0 class.

3 Escape

3.1 Means of escape

3.1.1 Escape routes shall be maintained in a safe condition, free of obstacles, and shall be easily accessible and clearly marked.

3.1.2 At least one (1) escape route shall be available from all spaces or groups of spaces normally accessible to the crew.

3.1.3 At least two (2) widely separated escape routes shall be provided from the accommodation and service spaces (at each level).
SECTION 3 FIRE SAFETY MEASURES FOR CARGO SHIPS OF 500 GROSS TONNAGE AND ABOVE AND PASSENGER SHIPS

1 General

1.1 Application

1.1.1 The requirements in this section apply to cargo ships of 500 gross tonnage and above and passenger ships assigned main class.

1.2 Documentation requirements

1.2.1 The Builder shall submit the documentation required by Table 1. The documentation will be reviewed by DNV GL as a part of the class contract.

Table 1 Documentation requirements for builder

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</tr>
</thead>
<tbody>
<tr>
<td>Fire control plan</td>
<td>G040 - Fire control plan</td>
<td>See SOLAS II-2, Reg.15 2.4</td>
<td>FI</td>
</tr>
<tr>
<td>FI=For information</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.2.2 For general requirements for documentation, including definition of the info codes, see Pt.1 Ch.3 Sec.2.

1.2.3 For a full definition of the documentation types, see Pt.1 Ch.3 Sec.3.

2 Fire Control Plans

2.1 Fire control plans

(SOLAS Ch. II-2/15.2.4)

2.1.1 General arrangement plans shall be permanently exhibited for the guidance of the ship's officers, showing clearly for each deck:

- the control stations
- the various fire sections enclosed by “A” class divisions
- the sections enclosed by "B" class divisions together with particulars of the fire detection and fire alarm systems
- the sprinkler installation
- the fire-extinguishing appliances
- means of access to different compartments, decks and such like
- the ventilating system including particulars of the fan control positions, the position of dampers and identification numbers of the ventilating fans serving each section.

Alternatively, at the discretion of the Society, the aforementioned details may be set out in a booklet, a copy of which shall be supplied to each officer, and one copy shall at all times be available on board in an accessible position. Plans and booklets shall be kept up to date; any alterations thereto shall be recorded as soon as is practicable. Descriptions in such plans and booklets shall be in the language or languages required by the Society. If the language is neither English nor French, a translation into one of those languages shall be included.
2.1.2 A duplicate set of fire control plans or a booklet containing such plans shall be permanently stored in a prominently marked weather tight enclosure outside the deckhouse for the assistance of shore-side fire-fighting personnel.

Guidance note:
Refer to "Graphical symbols for shipboard fire control plans" adopted by IMO by Res. A.952(23).

---e-n-d---of---g-u-i-d-a-n-c-e---n-o-t-e---
SECTION 4 FIRE SAFETY MEASURES FOR ISSUANCE OF SOLAS SAFETY CERTIFICATES

1 General

1.1 Application

1.1.1 The requirements in this section apply when the government of the flag state has authorised the Society to issue the SOLAS safety equipment certificate (CEC) and SOLAS safety construction certificate (CCC) on their behalf.

1.1.2 These requirements are supplemented by those given in the publication “DNV GL Statutory Interpretations”.

1.2 Purpose

1.2.1 The purpose of this section shall provide a set of clarifying requirements for Ch.II-2 of SOLAS. The clarifying requirements are made up of the Society’s and IACS’ interpretations to Ch.II-2 of SOLAS and are meant as a further detailing and clarification of the basic SOLAS requirement.

1.3 Scope

1.3.1 Requirements in Ch.II-2 Regs.1-3, 4.3, 4.4, 5-10, 11.1-11.4, 12-23 of SOLAS are considered as part of the Society's scope under the authorization from the government of the flag state.

1.3.2 Where IMO has issued interpretations to Ch.II-2 of SOLAS, such interpretations are regarded as part of SOLAS and the Society's scope.

1.3.3 Statutory interpretations provided by the Society are published separately as the publication “DNV GL Statutory Interpretations”.

1.3.4 If any contradictory requirements are identified, the requirements of Ch.II-2 of SOLAS and of the FSS-Code shall take precedence.

1.4 Documentation requirements for the Builder

1.4.1 Plans and documentation given in Table 3 of DNV GL Statutory Interpretations (SOLAS Ch. II-2) shall be submitted for approval.
Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16 000 professionals are dedicated to helping our customers make the world safer, smarter and greener.