



NEWBUILDINGS
SPECIAL EQUIPMENT AND SYSTEMS – ADDITIONAL CLASS

NAV-O Class Notation

JANUARY 2007

*This chapter has been amended since the main revision (January 2007), most recently in July 2011.
See “Changes” on page 3.*

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FOREWORD

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The Rules lay down technical and procedural requirements related to obtaining and retaining a Class Certificate. It is used as a contractual document and includes both requirements and acceptance criteria.

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CHANGES

General

The present edition of the rules includes amendments and additions approved by the Board as of December 2006 and supersedes the January 2004 edition of the same chapter.

The rule changes come into force 1 January 2007.

Text affected by the main rule changes is highlighted in red colour in the electronic pdf version. However, where the changes involve a whole chapter, section or sub-section, only the title may be in red colour.

This chapter is valid until superseded by a revised chapter.

Amendments July 2011

- **General**

- The restricted use legal clause found in Pt.1 Ch.1 Sec.5 has been added also on the front page. In addition, the layout has been changed to one column in order to improve electronic readability.

Main changes

- **General**

- The main structure of this chapter has been left unchanged. Some of the text has been removed or amended in order to clarify the requirements, such as:
 - the previous limitation that the **NAV-O** notation can only be given to vessels constructed before 1 July 2002 has been removed
 - requirements for added documentation to be submitted for information have been included.

Corrections and Clarifications

In addition to the above stated rule requirements, a number of corrections and clarifications have been made in the existing rule text.

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SECTION 1 GENERAL REGULATIONS AND INFORMATION

A. Application

A 100 General

101 The optional class notation **NAV-O** may be given to ships being transferred to DNV, when holding an equivalent class notation from the “losing society”.

B. Scope

B 100 Summary

101 This chapter comprises the minimum technical requirements for bridge design and console arrangements.

B 200 Equivalent equipment

201 Other technical equipment and systems not mentioned in these rules may be used provided they have been accepted as being equivalent.

B 300 Exemptions

301 Whenever a small vessel or a vessel of special construction cannot comply fully with these requirements due to structural restrictions, any requirements not complied with shall be compensated for by appropriate means.

C. Definitions

C 100 Terms

For this chapter only, the following definitions apply.

101 *Navigating and manoeuvring workstation.* Main workstation for ship command with optimum visibility and integrated presentation of information and operating equipment. It shall be possible from this position to operate the ship efficiently, in particular when a fast sequence of action is required.

102 *Monitoring workstation.* Workstation from where equipment and environment can be monitored.

103 *Bridge.* The area from which the vessel is navigated, controlled and operated, including wheelhouse and bridge wings.

104 *Field of vision.* Angular size of the scene that can be observed from a position on the ship's bridge.

105 *Bridge wings.* Those parts of the bridge on both sides of the wheelhouse which in general extend to the ship's side.

106 *Wheelhouse.* Enclosed area of the bridge.

107 *Watch alarm system.* System which monitors and alarms lack of watch-monitoring awareness.

108 *Officer of the watch.* Person responsible for safe navigating, operating of bridge equipment and manoeuvring of the ship.

SECTION 2 DOCUMENTS

A. Document for Information

A 100 Document to be submitted for information

101 A copy of the class certificate from the “losing society” shall be submitted for information.

102 A copy of a wheelhouse arrangement drawing showing the location of workstations in the wheelhouse shall be submitted for information.

103 A copy of a field of vision drawing showing the field of vision from the workstations shall be submitted for information.

SECTION 3 BRIDGE CONFIGURATION

A. Workstations

A 100 Workstations

101 These requirements apply to the navigating and manoeuvring workstation and the monitoring workstation.

102 The requirements and guidelines of ISO 8468 for the helmsman's workstation, the bridge wing workstation, the chart table and documentation workstation, the safety workstation and the radio communication workstation are recommended.

103 A combination of workstations is permitted.

104 At each workstation all information shall be displayed and all units and appliances shall be installed that are necessary for the safe performance of all functions and activities occurring there.

105 The navigating and manoeuvring workstation shall be planned, designed and placed to allow efficient bridge operation. If the navigating and manoeuvring workstation and the monitoring workstation are combined as one, there shall be space for two operators.

B. Field of Vision and Structural Arrangements

B 100 Field of vision and structural arrangements

101 Every effort shall be made to place the bridge above all other superstructures.

102 The view of the sea surface from the navigating and manoeuvring workstation and the monitoring workstation shall not be obscured by more than two ship lengths, or 500 m, whichever is the less, forward of the bow to 10° on either side under all conditions of draught, trim and deck cargo, e.g. containers (see Fig.1).

103 The horizontal field of vision from the navigating and manoeuvring workstation and the monitoring workstation shall extend over an arc of not less than 225°, that is from right ahead to not less than 22.5° abaft the beam on either side of the ship.

104 No blind sector caused by cargo, cargo gear or other obstructions outside of the wheelhouse forward of the beam that obstructs the view of the sea surface as seen from the navigating and manoeuvring workstation and the monitoring workstation, shall exceed 10°. The total arc of blind sectors shall not exceed 20°. The clear sectors between blind sectors shall be at least 5°. However, in the view described in 102 each individual blind sector shall not exceed 5°.

105 The height of the lower edge of the front windows above the deck surface shall not be more than 1 000 mm.

106 The minimum height of the upper edge of the front windows above the deck surface shall be at least 2 000 mm.

107 Divisions between windows shall be kept to a minimum. No division shall be installed immediately forward of any workstation, including the centre-line.

108 Windows especially those in front of the navigating and manoeuvring workstations and the monitoring workstations shall be as wide as possible.

109 All bridge front windows through which the officer of the watch looks from the navigating and manoeuvring workstation and the monitoring workstation shall be inclined from the vertical plane top out, at an angle of not less than 15° and not more than 25°, to avoid reflections.

110 The use of polarized or tinted glass is not permitted.

111 The bridge front windows shall be provided with efficient cleaning, de-icing and demisting systems.

112 A sufficient number of sun screens with minimum colour distortion shall be provided at forward, side and aft facing windows. Such screens shall be readily removable and not permanently installed.

113 Every effort shall be made to allow a clear route across the wheelhouse from bridge wing to bridge wing. The width of the passageway shall be at least 1 200 mm.

114 The clear height between the bridge deck surface covering and the underside of the deck head beams shall be at least 2.25 m. The lower edge of deck head mounted equipment shall be at least 2.10 m above the deck in open areas, passageways and at standing workstations.

115 Toilet facilities shall be provided on the bridge or adjacent to the bridge.

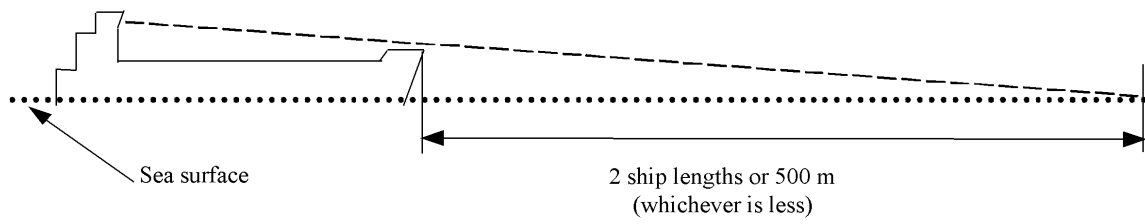


Fig. 1
Forward view

SECTION 4 BRIDGE EQUIPMENT

A. General

A 100 General

101 Ships shall be equipped in accordance with SOLAS 1974 Chapter V, as applicable.

102 The equipment and or their operating devices and control elements, listed under B, shall be fitted so as to be easily accessible and within the range of the navigating, manoeuvring and monitoring workstation(s). The listed indicators and alarms shall be capable of being seen, i. e. viewable and or visible.

B. Equipment

B 100 Equipment to be provided

101 *Navigating and manoeuvring workstation*

The following equipment shall be provided and be readily accessible to the officer of the watch:

- a) Radar display
- b) Automatic radar plotting aid, ARPA
- c) Heading control or track control system with override
- d) Steering selector switch for steering gear
- e) Rudder pump selector switch for steering gear
- f) Call system for master and navigation officers (telephone and or internal communication system)
- g) VHF equipment (external communication)
- h) Acknowledge push button for watch alarm system
- i) Control of whistle
- j) Control of general alarm
- k) Control of window wipe and wash installation
- l) Control of console lighting
- m) Remote control of main engine(s), including emergency manoeuvring
- n) Emergency stop main engine(s).

The following additional equipment shall be provided near the navigating and manoeuvring workstation:

- a) Indicator for:
 - gyro compass heading
 - rate-of-turn (for ships > 100 000 gross tonnage)
 - rudder angle
 - propeller revolutions
 - propeller pitch
 - speed log
 - echo sounder depth
 - magnetic compass heading
 - electronic position-fixing system
 - ship's time
 - sound reception device, if applicable.
- b) Whistle control system
- c) Control and monitoring of navigational lights
- d) Navigational equipment status indication and alarms
- e) Fire alarms
- f) Alarms of further safety systems, if applicable
- g) Daylight signalling lamp
- h) Emergency stop of installations to be stopped in case of fire

- i) Remote control and monitoring of watertight doors and fire doors, if applicable
- j) Stabiliser system, if applicable.

102 *Monitoring workstation*

The following equipment shall be provided and be readily accessible to the operator:

- a) Radar display
- b) Control of whistle
- c) Acknowledge push button for watch alarm system
- d) Control of window wipe and wash installation
- e) Internal communication
- f) VHF equipment (external communication)
- g) Indicator for:
 - gyro compass heading
 - rate-of-turn (for ships > 100 000 gross tonnage)
 - rudder angle
 - propeller revolutions
 - propeller pitch (if applicable)
 - speed log
 - echo sounder depth
 - ship's time.

If the monitoring workstation is designed in such a way that equipment or indication, shown under sub-items b) to g), is arranged at the navigating and manoeuvring workstation and can be reached and or observed from the monitoring workstation, then such equipment is not required to be installed in duplicate.

103 *General bridge equipment*

- weather fax
- control of wheelhouse heating and cooling
- watch alarm system
- sound reception device for external sound signals, depending on bridge design.

SECTION 5

REQUIREMENTS FOR INSTRUMENTS AND OR EQUIPMENT

A. General

A 100 General

101 All appliances and systems shall be suitable for use onboard ships.

102 The navigational and monitoring equipment fitted shall be of an approved type.

103 Switches, keys and other operating elements shall be designed and fitted so as to ensure their safe and easy operation and to preclude confusion. The direction of motion of operating elements for manoeuvring equipment shall correspond to the direction of the effect on the ship caused by the installations controlled.

B. Monitoring Systems and or Alarms

B 100 Monitoring systems and or alarms

101 *Alarms of navigational equipment and or systems*

The following alarms associated with navigational equipment, e.g. monitoring of rated values, function diminution and equipment failure, shall be integrated in one panel:

- shallow depth
- ARPA warnings of predicted targets (CPA, TCPA)
- off-course
- track-control alarms (if applicable)
- gyro compass failure.

102 *Watch alarm system*

a) A system shall be provided on the bridge to verify the awareness of the officer of the watch. Such a system shall be based on interval checking and shall be adjustable up to intervals of 12 minutes. Acknowledge push buttons shall be located at the following positions in the bridge area:

- navigating and manoeuvring workstations
- monitoring workstation(s)
- bridge wings.

Acknowledge push buttons shall only be located at bridge positions enabling proper look-out.

- b) Changing and or adjusting of the time intervals, including any facility to switch-off the watch alarm system, shall be protected against unauthorized access.
- c) Alarm suppression by persistent pressing of the acknowledge push button shall not be permitted.
- d) Power supply failure in the watch alarm system shall be indicated by an alarm.
- e) In the event that the acknowledge push button is not pressed within the set time interval, then an alarm shall sound on the bridge and if not observed within 30 seconds, the alarm shall be transferred to the mess rooms and other public rooms, and to the quarters of the master and an appointed back-up navigator.

103 *Master and navigation officers' call-system*

A call-system shall be fitted by which master and navigation officers can be summoned in their accommodation and public rooms from the navigating and manoeuvring workstation. This call-system may be the general telephone, the internal communication system and or the public address system. The call-system shall be provided with priority control on the bridge.