Overview of Guidelines Issued by ClassNK during CY 2024

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During calendar year 2024, ClassNK issued the 9 Guidelines shown in Table 1. This article presents the outlines of these Guidelines.

Table 1　Guidelines issued during CY 2024

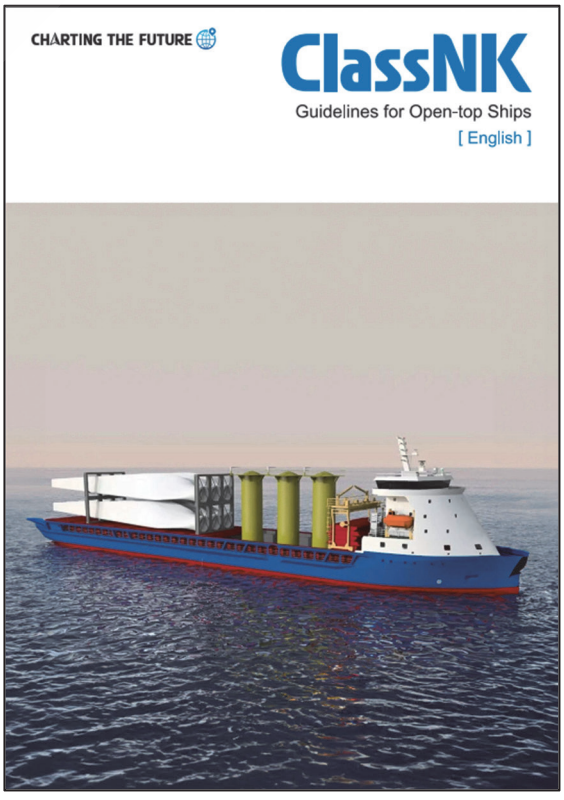
Title	Languages	Date of issue	Contact
Environmental Guidelines (Edition 4.1)	Japanese/ English	February 2024	Rule Development Dept.
Guidelines for Open-top Ships (Edition 1.0)	Japanese/ English	March 2024	Rule Development Dept.
Guidelines for Ships Using Alternative Fuels (Edition 3.0)	Japanese/ English	July 2024	Technical Solution Dept.
Guidelines for Wind-Assisted Propulsion Systems for Ships (Edition 2.1)	Japanese/ English	July 2024	Technical Solution Dept.
Guidelines for Offshore Access Systems (Edition 1.0)	Japanese/ English	July 2024	Rule Development Dept.
Guidelines for Cyber resilience of ships (Edition 1.0)	Japanese/ English	July 2024	Machinery Dept.
Guidelines for Liquefied Hydrogen Carriers (Edition 3.0)	Japanese/ English	September 2024	Technical Solution Dept.
Guidelines for Excellent Living and Working Environment (Edition 1.1)	Japanese/ English	October 2024	Rule Development Dept.
Guideline for the Safe Transportation of Electric Vehicles (Edition 2.0)	Japanese/ English	December 2024	Material and Equipment Dept.

Environmental Guidelines (Edition 4.1)

All industries are engaged in global efforts to address environmental problems, and the maritime industry is no exception. The industry is also responding to heightened awareness of corporate social responsibility (CSR) and Sustainable Development Goals (SDGs) through initiatives (environmental measures) that not only meet but exceed the minimum requirements of international conventions in diverse fields such as prevention of marine pollution and air pollution. The Society first issued "Environmental Guidelines" in 2008, establishing a system under which environmental measures applied to ships are indicated as notations affixed to the ship classification characters. Since that time, the Guidelines have been revised several times in line with reviews of the related provisions. Edition 4.0 (2021) also established a new certification service that recognizes ships which have taken advanced environmental measures.

Among recent global warming measures, Edition 4.1 establishes new efforts for "green steel," which has attracted interest in many industries, beginning with the steel industry, as well as construction and automobiles, that is, steel products produced using technologies that substantially reduce or realize zero CO_2 emissions in all or part of the steel manufacturing processes (a total of processes from raw materials to steel making), when this green steel is used in the ship hull structure, etc., and the installation of equipment for recovery of microplastics (marine plastic waste with a length < 5 mm), which is feared to have adverse impacts on marine life.

Guidelines for Open-top Ships (Edition 1.0)



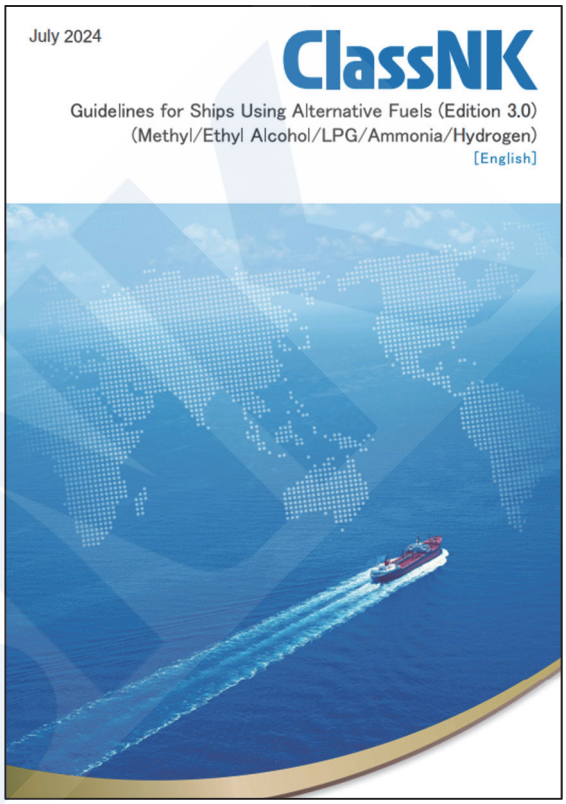
In recent years, there has been an increasing demand for the transport of large cargoes such as offshore wind power generation equipment without hatch covers on container carriers and general cargo ships.

The IMO adopted the guidelines "Interim Guidelines for Open-top Containerships" (IMO circular MSC/Circ.608/Rev.1) in July 1994 to serve as its guideline for "open-top" containerships (i.e. container carriers with cargo holds not fitted with hatch covers) and it specifies requirements for model test procedures, hold bilge dewatering systems, fire-protection and other matters related to such ships.

Therefore, based on the aforementioned IMO guideline and its own knowledge and experience, the Society developed its "Guidelines for Open-top Ships" (hereinafter referred to as "the Guidelines") to provide requirements related to the transport of cargoes on open-top ships. The Guidelines cover not only container carriers but also extend the original scope of IMO guideline to include general cargo ships and other cargo ships. The Guidelines

stipulate procedures for model tests and other requirements for such ships, and make it clear the application of its requirements is contingent upon obtaining Flag Administration approval for an exemption to relevant international conventions applicable to such ships.

Guidelines for Ships Using Alternative Fuels (Edition 3.0)

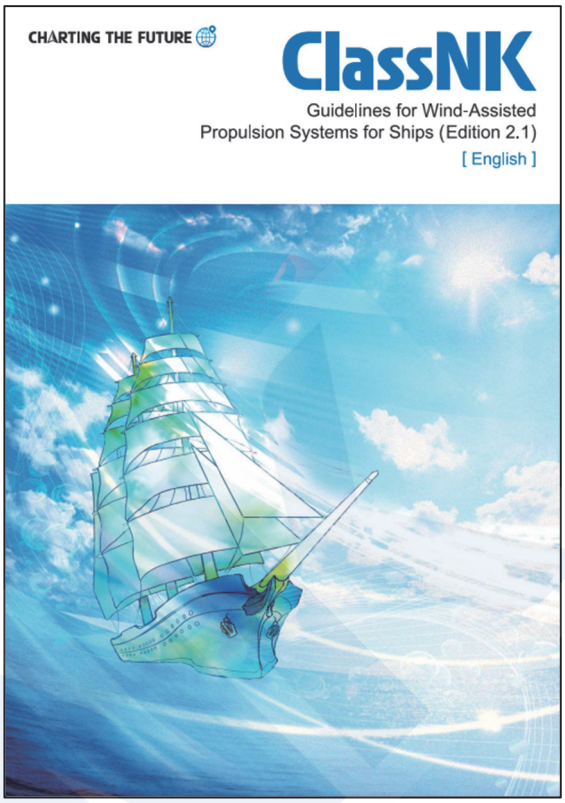


The first edition of these guidelines was published in 2021. Since then, the guidelines have been revised based on the implementation of the guideline on actual ships or added alternative fuel types, and the third edition (August 2024) has been published. In this edition, the safety requirement for hydrogen fuel was newly added and the safety requirement for ammonia fuel was partially revised.

Hydrogen and ammonia fuel are attracting attention as fuels with high GHG reduction effects on ships. However, the safety requirements for hydrogen and ammonia fuel are not specified in the international conventions or codes developed by the International Maritime Organization (herein after IMO). As of August 2024, when the third edition of these guidelines was published, the IMO interim guidelines were under development. Therefore, we, ClassNK, publish the edition of these guidelines to provide a certain safety level for ships introducing hydrogen and ammonia fuel.

In the future, the IMO plans to finalize the Interim Guidelines for ammonia fuel at the end of 2024 and the one for hydrogen fuel at the end of 2025, then our guidelines will be revised in accordance with the IMO interim guidelines.

Guidelines for Wind-Assisted Propulsion Systems for Ships (Edition 2.1)



Currently, as a solution for responding to the EEXI regulations and CII rating, and fuel costs reduction, the implementation of Wind-Assisted Propulsion Systems (herein after WAPS) is accelerating.

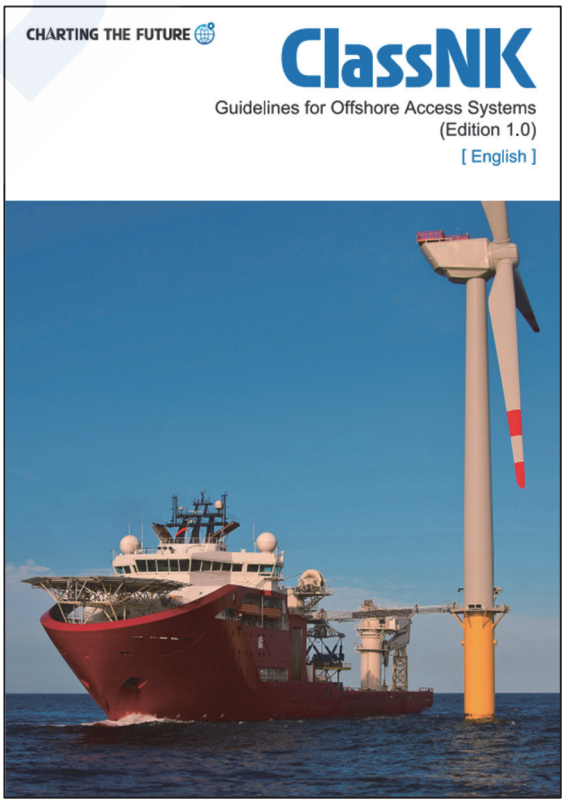
The safety of ships is guaranteed by international conventions, domestic laws, related regulations, etc., but there are still no conventions applicable to WAPS.

Therefore, ClassNK published the first edition of "Guidelines for Wind-Assisted Propulsion Systems for Ships" in 2019 and has performed drawing examinations and surveys related to the actual installation projects.

Since then, reflecting the insights obtained from involvement in the actual installation projects, the guidelines are updated to the 2.1 edition (July 2024). In this edition, the guidelines now provide a comprehensive overview of the points to be considered in designing WAPS and their installation on ships to "update reference rules (Part X of the NK Rules)" and "clarify the classification and refinement of requirements."

Also, the Guidelines will be successive updates planned, at the stage when actual results and knowledge concerning the adoption of WAPS have been accumulated.

Guidelines for Offshore Access Systems (Edition 1.0)



As countries around the world have increased their use of renewable energy in recent years, the use of offshore power generation facilities has, mainly in Europe, become one of the main approaches being adopted. The implementation of programs for maintaining such facilities have already entered into service, and special ships have been introduced to support the maintenance and management of those facilities intended to operate for long periods of time. Such ships are typically provided with personnel transfer arrangements to ensure safe and efficient access for workers involved in maintenance and management operations from ships to offshore facilities.

The *International Code of Safety for Ships Carrying Industrial Personnel* (hereinafter referred to as the "IP Code") adopted by the IMO Maritime Safety Committee at its 106th session (MSC 106) in November 2022 entered into force in July 2024. Although the IP Code specifies general requirements for ships manned by industrial personnel (all persons transported or accommodated on board for the purpose of offshore industrial activities performed on board other ships, offshore facilities or both), the design, construction, testing and installation of personnel transfer arrangements are subject to the requirements of the various individual classification societies.

This Guidelines specifies ClassNK's requirements for surveys of personnel transfer arrangements not only during their manufacture and installation but also periodical surveys to verify the continued compliance of such arrangements. Furthermore, this Guidelines also specifies that ships equipped with personnel transfer arrangements complying with its requirements may have their classification characters be affixed with notation corresponding to the classification of their personnel transfer arrangements.

Guidelines for Cyber resilience of ships (Edition 1.0)

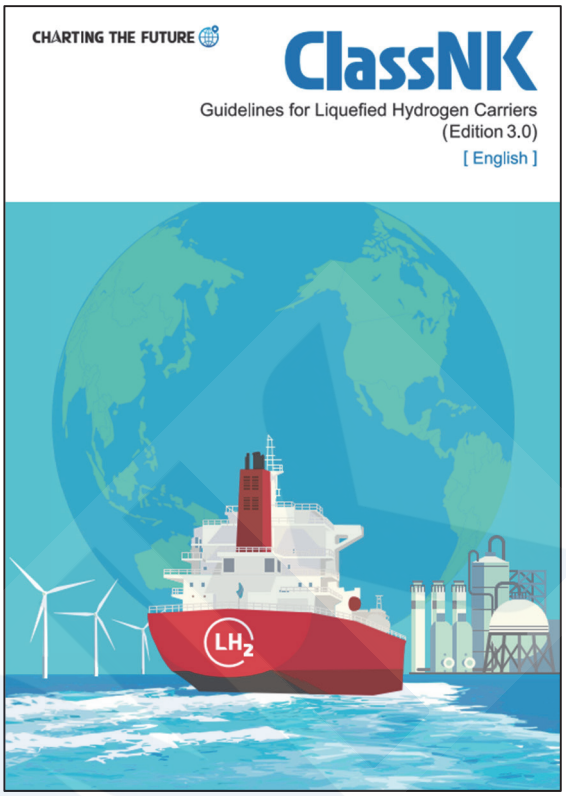
In recent years, maritime systems have shifted from traditional physical connections and controls to digital interconnections via computers and the internet. As a result, the risk of cyber-attacks has increased. In the event of such an attack, there could be impacts on the safety of life and property at sea, as well as on the prevention of pollution of the marine environment.

In response to these developments, IACS issued two Unified Requirements—UR E26 and UR E27—in April 2022, establishing the necessary measures to ensure cyber resilience: the ability to withstand, respond to, and recover from cyber incidents.

Of these, UR E26 specifies requirements for ships. ClassNK has incorporated these requirements into *Chapter 5, Part X of the Rules for the Survey and Construction of Steel Ships*. These rules apply to ships registered with ClassNK, for which the contract for construction is dated on or after 1 July 2024.

The guidelines are primarily intended for shipowners and shipyards (as integrators) and aim to provide a clear and practical explanation of the cyber resilience requirements specified in Chapter 5, Part X. They consist of five chapters: Overview, Application, Process, Submission of Plans and Documents, and Survey.

Guidelines for Liquefied Hydrogen Carriers (Edition 3.0)

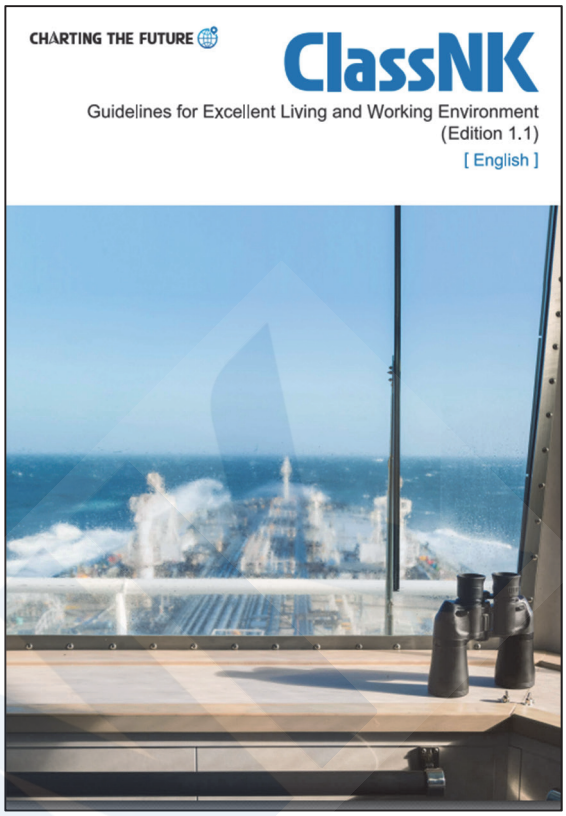


To construct a supply chain for hydrogen, which is expected to be a clean energy source in a decarbonized society, the development of liquefied hydrogen carriers that enable large-scale and efficient transportation is progressing actively.

IMO has worked on establishing safety requirements for liquefied hydrogen carriers with an extremely low cargo temperature of minus 253 degrees Celsius, and “Interim Recommendations for Carriage of Liquefied Hydrogen in Bulk” was adopted in 2016. Subsequent development of liquefied hydrogen carriers led to the construction project of a larger-scale liquefied hydrogen carrier with cargo containment systems of different designs from a prototype liquefied hydrogen carrier. In response to this, the revision of the interim recommendations has been considered in IMO since 2021 and adopted at MSC 108 in May 2024.

In light of this situation, ClassNK has updated its “Guidelines for Liquefied Hydrogen Carriers” as edition 3.0, reflecting the changes in the interim recommendations and the knowledge gained through related projects. In this update, new safety requirements for cargo containment systems with different designs from an existing prototype liquefied hydrogen carrier were added, and the guidelines’ structure was reformed in anticipation of a future expansion of the applicable scope. Furthermore, to clarify the selection criteria for metallic materials suitable for liquid hydrogen carriers, an annex of guidance for the selection of metallic materials for hydrogen equipment was also newly implemented.

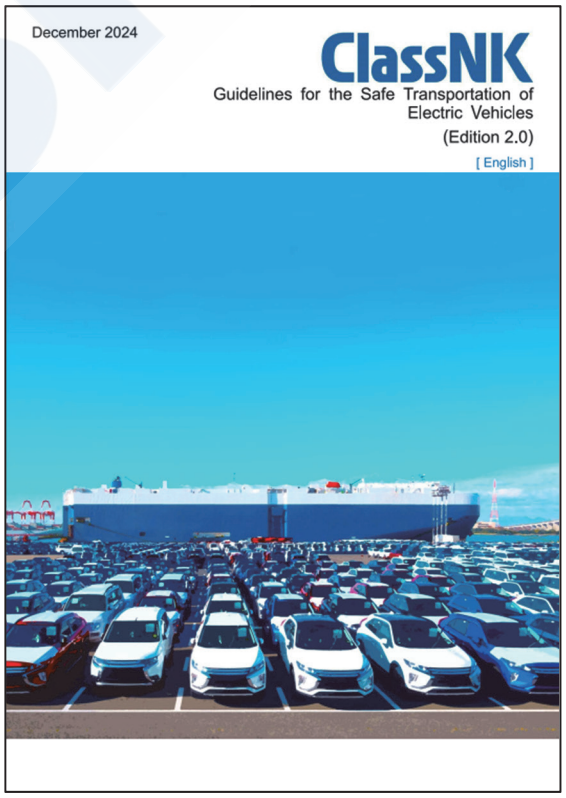
Guidelines for Excellent Living and Working Environment (Edition 1.1)



In moves related to the labor environment for seafarers working on ships, the Maritime Labour Convention (MLC, 2006) entered into force in 2013, and efforts to improve the labor environment are being made internationally. To make ships an attractive workplace for seafarers, ships that put more effort into improvement of the living environment and working environment than required under the MLC have appeared in recent years. To identify ships that make such efforts, "Guidelines for Excellent Living and Working Environment" was issued in 2022, making it possible to affix the notation Excellent Living and Working environment (abbreviation: ELW) to the ship's classification characters.

Among efforts to improve the working environment, in response to the increase in ships that install hydroponic equipment that can cultivate vegetables, etc. almost automatically in living quarters, and provide meals that include fresh vegetables, etc. to seafarers, Edition 1.1 was revised so that notation to this effect can be affixed to the classification characters of ships equipped with such systems.

Guidelines for the Safe Transportation of Electric Vehicles (Edition 2.0)



Accompanying a large increase in the number of registered electric vehicles (EVs) worldwide, the number of EVs transported by car carriers is also expected to increase. Since the driving force for an EV is the electric energy stored in a lithium ion battery (LIB), when a fire breaks out from the LIB, or the LIB catches fire from another source, a different response from that used with gasoline automobiles is necessary to extinguish the fire. In August 2023, the Society issued "Guidelines for the Safe Transportation of Electric Vehicles," which described the characteristics and points to note when an EV fire occurs, and presented the key points surrounding fire safety measures that are considered to be effective. Assuming the case where a fire breaks out from an automobile storage area of a car carrier, the Guidelines were revised as Edition 2.0 in 2024, focusing on where risks exist for safe evacuation of the crew from the ship, and what conceivable countermeasures are available. The risks that exist in car carriers are different from those of other ships because, unlike other types of ships, the living quarters and lifesaving equipment are located above the automobile storage areas. In order to discuss the risks and countermeasures, a risk assessment incorporating the opinions of related persons in Japan was carried out and summarized in a risk assessment report, and the risk assessment report was also published simultaneously with the revised Guidelines. Ships that take actions that are considered

effective can affix a notation to that effect to the ship’s classification characters.