Introduction to

ClassNK

[English]

Management Principles

Vision

ClassNK, as an international classification society, will contribute to the world through the activities to ensure the safety of life and property, and to protect the environment.

- **The organization aims to be ahead of the social shift and contribute to the creation of a sustainable and better society.**
- **The organization aims to flexibly respond to the changes of the surrounding business environment.**
- **The organization aims to be trusted by related industries and societies, and strengthen its business foundation.**

Profile

As a non-profit third-party certification body, Nippon Kaiji Kyokai (ClassNK) carries out surveys, certifications, rule-making, and R&D, with its mission of contributing to the safety of life and property, and environmental protection.
For more than 120 years, ClassNK has been developing rules and performing surveys to help ensure the safety of ships as a neutral third party as a class society, granting commercial ships the class required for insurance coverage.
We carry out drawing examinations and witness surveys related to hull structures, engines, equipment, materials, and various other systems based on class rules for ships and marine structures, and grant a class to ships that meet the standards. With over 9,000 ships on its register, we are the world's largest* society in terms of number of ships.
ClassNK is widely trusted as a technical organization, and have obtained the authority for surveys and certifications based on international conventions and regional regulations on behalf of over 100 flag administrations.
In addition, utilizing our many years of knowledge and experience as a third-party certification body, we are expanding certification area to various management systems including quality, environment, occupational safety and health, GHG emissions, renewable energy-related facility, and entire transportation and logistics.
In response to environmental issues such as climate changes and social transformation by digitalization, companies are taking actions aimed at higher standards for ensuring reliability and sustainability, and the need for evaluation and certification on such initiatives is increasing.
ClassNK provides comprehensive certification services meeting a wide range of needs, and actively contribute to customers' businesses and the evolution of society.
*©Clarksons Research Statistics (As of end of 2022)

Environmental Challenges

While regulations related to environmental pollution and climate change are being tightened internationally, responsible actions for the environment, including decarbonization, are required in all business activities on top of compliance with the regulations.
Starting with the prevention of marine pollution from ships, ClassNK has always been involved in environmental protection. The Society works to solve environmental issues through implementation of appropriate surveys and certifications related to regulatory compliance, provision of solutions and information to support regulatory compliance of stakeholders, certification services for initiatives beyond regulatory compliance, R&D and development of decarbonization technologies through partnerships, etc.

Digital Transformation

As digital transformation changes society, ClassNK strives to promote efforts to improve its own services using digital technology, and builds the foundation for the industry to make the most of the benefits of digitalization.
We are actively implementing activities such as standard setting/certification for innovative technologies not yet having clear evaluation criteria established, in collaboration with technological front runners, and dissemination of a data collection/distribution/utilization platform in the maritime industry, in order to promote the safe and smooth use of digital technology such as automated/autonomous operation of ships, condition monitoring, remote surveys using ICT, and response to cyber threats.

ClassNK's slogan

CHARTING THE FUTURE

"CHARTING THE FUTURE" represents our commitment to contribute to a better future for our customers and society, based on our philosophy and vision. As decarbonization and digitalization progress, we maintain a broad perspective, flexible thinking, and a proactive attitude towards change. With this spirit, we will work together with our customers to build the future maritime society.

History

Since being founded as Asia's first classification society, we have progressed along with the development of the maritime industry and society.

- **1899 Founding of the Society's forerunner, Teikoku Kaiji Kyokai**
- 1903 Published Ship inspection rules
- 1919 Formed an association of four classification societies with the USA's ABS, Italy's RINA, and England's BC (later combined with LR).
- 1920 First classed ship, the Kwanan Maru, completed
- 1921 Published first edition of Steel Ship Rules
- 1924 Published first edition of the Register Book
- 1926 Society's class approved by London Insurance Association
- 1934 Society recognized as Japan's ship classification society by the government under Ship Safety Act
- **1946 Society renamed Nippon Kaiji Kyokai (ClassNK)**
- 1952 Society's class reapproved by the insurance association
- 1962 Opened first offices outside Japan (London and New York)
- 1968 Became one of founding members of the International Association of Classification Societies (IACS)
- 1993 Started ISO Audit
- 1997 ClassNK fleet tops 100 million GT
- 2012 ClassNK fleet tops 200 million GT
- **2018 ClassNK fleet tops 250 million GT**

Overview

As a third-party organization specializing in certification, we provide services in a wide range of fields for ships and more.

- Establishment, revision and abolition of class rules
- Drawing examinations and witness surveys related to hull structure, machinery, electrical and automatic installations, safety equipment, navigation equipment, cargo gears, materials, etc. of ships and offshore structures being built and in service.
- Approval of various manufacturers and service suppliers
- Surveys and certification based on international conventions and regional regulations
- Third-party assessment and certification related to ships, etc.
- Class registration for government ships, etc.
- Inspection of testing machines, etc.
- Management system certification based on ISO standards such as quality, environment, occupational safety and health
- Verification of GHG emissions
- Certification related to renewable energy facility
- Certification of transportation and logistics area
- Independent and collaborative R&D through partnerships
- Human resource development

Class & Statutory Services

Surveys and examinations conducted based on class rules and international conventions are the core business of ClassNK, where we provide high-quality and prompt services.

Service as a classification society

- Classification and class societies

Classification originates from the classification of ships required when applying for marine insurance, which began in the United Kingdom in the mid-18th century. Class societies were born out of the need for organizations that are independent of conflicting insurers, shipowners, and shipbuilders, and takes on role of impartial technical judgment as third parties.

Class societies establish standards related to ship safety as rules, and assign “Class” to ships that comply with the rules through drawing examinations and on-site surveys during their design and construction stages. To confirm the maintenance of a ship's class through periodic surveys after the ship is in service and to verify its safety was another original role. Class is said to be the prototype of the international third-party certification system, and class societies have been established mainly in countries where shipping is prosperous.

Even today, as one of the conditions for underwriting marine insurance, industry associations of insurance companies require ships to be classed by a member of the International Association of Classification Societies (IACS), which is made up of the world's leading ship classification societies.

- Establishment, revision and abolition of ship class rules

ClassNK establishes rules related to ensuring ship safety and preventing environmental pollution, and registers ships that comply with those rules. ClassNK rules are continuously established, revised and abolished, reflecting the latest research and findings, industry demands, and latest conventions so that they become safer and more rational standards.

ClassNK rules stipulate hull structure in the design stage, materials , machineries and equipment installed on the ship, and surveys for ships to maintain their class after entering service. They also apply to the quality of shipyards and related companies (those related to shipbuilding, repair, maintenance, etc.).

- Approval of suppliers

For manufacturers and service suppliers engaging in manufacturing materials and equipment for classed ships and the maintenance of safety equipment and various measurements during construction and after service, we assess their quality systems, production technologies, and facilities based on the rules, and certify them as approved firms.

- Inspection and approval of materials, machinery, and equipment

We examine and approve the materials, machineries, and equipment used for classed ships. Based on the rules, we carry out individual product inspection, manufacturing process approval, standardized design/type approval, mass production approval, type test, prototype approval, approval of use, etc. according to the product (examples below).

- Rolled steel, castings, forgings
- Prime movers, boilers, deck machineries, and other auxiliary machineries
- Anchors, anchor chains, mooring ropes
- Fire protection materials, welding consumables, oil-impervious materials, coating systems, airborne sound insulations
- Lifeboats, rescue boats, launching appliances, fire detection and alarm systems
- Automatic and remote control systems, low temperature valves for gas carriers, air pipe heads, liquid level gauging devices
- Marine pollution prevention equipment

- Registration surveys during construction

Class NK conducts surveys during each stage of construction to classify the ship. Various design drawings of the ship are examined by our head office or overseas plan approval center based on the rules. When construction begins, surveyors confirm that the materials, machineries, and equipment used on the ship have been approved and survey the construction process to ensure it is carried out in accordance with rules and approved drawings. A class certificate is issued to ships that have completed the classification survey during construction after examination of design drawings, surveys during construction and sea trials, adding it to the Register of Ships publicized worldwide. Ships with the ClassNK class are recognized by the insurance industry around the world as those that meet certain standards and are subject to the prime rates for marine insurance.

- Class maintenance surveys

A class certificate is valid for 5 years, but to maintain such status, periodic surveys stipulated in the rules are required, as well as occasional surveys as necessary. Periodic surveys are always carried out once a year.

ClassNK has established a structure to promptly implement class maintenance surveys at ports, docks, and anchorages around the world and support the smooth operation of ships in service.

- Registration surveys after construction

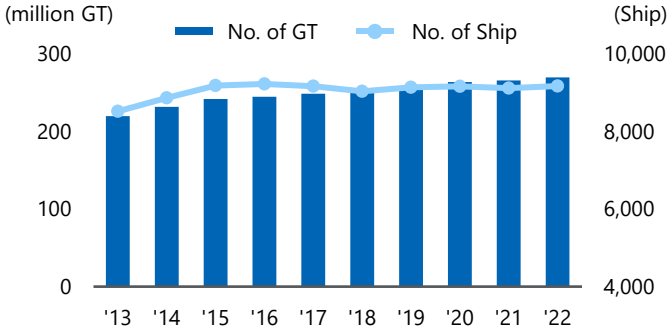
Ships built and registered in accordance with the rules set by members of the International Association of Classification Societies (IACS), which is composed of the world's major class societies, can be registered as ClassNK ships by undergoing a classification survey after construction in accordance with the procedures stipulated in the IACS Transfer of Class Agreement (TOCA).

- Transfers of class to ClassNK

As of the end of 2022, 9,178vessels, or approximately 270 million gross tons, were registered to ClassNK.

ClassNK accounts for the largest number of vessels of the IACS members and 20% of the world's gross tonnage.

© Clarksons Research statistics (as of the end of 2022)



製造中登録検査のプロセス

船級維持検査のプロセス

Statutory services on behalf of flag administration

Merchant ships around the world that transport passengers and cargo are required to comply with international minimum requirements related to safety and prevention of environmental pollution that are stipulated as international conventions. International conventions are established by the International Maritime Organization (IMO), a specialized agency of the United Nations, and etc., and compliance to such conventions is to be confirmed by the government administration of the country (flag state) where the flag of the ship is registered. In addition to ships, some conventions also apply to ship management companies, etc. With its abundant knowledge cultivated as a class society and numerous offices around the world, ClassNK is authorized by flag state administrations to perform surveys, audits, and certifications based on international conventions. The following are some of the major international conventions that ClassNK is involved with.

- **International Convention on Load Lines (ICLL)**

Defines the limits of load lines (i.e. legal limit of loaded cargo weight) and tightness in order to ensure the safety and watertight integrity of the ship against wave uprush etc.

- **International Convention for the Safety of Life at Sea (SOLAS)**

Sets out safety standards for ship structure, fire protection, life saving appliances and arrangements, and radio communications etc. for the purpose of protecting the lives of passengers and the cargo onboard.

- **International Convention for the Prevention of Pollution from Ships (MARPOL)**

Sets out the requirements for preventing and minimizing pollution from ships including pollution by oil, noxious liquid substances in bulk, sewage, and air pollution caused by NOx, SOx/PM, CO2 and other exhaust gases.

- **Convention on the International Regulations for Preventing Collisions at Sea (COLREG)**

Defines navigational methods for marine traffic of vessels, indicator lights and signal signs according to the type of vessel and the form of voyage (towing vessels, work vessels, etc.) in order to prevent vessel collisions at sea.

- **International Convention on Tonnage Measurement of Ships (TM69)**

Stipulates universal measurement methods for Gross Tonnage (GT), which represents the volume of a ship.

- **International Safety Management Code (ISM Code)**

Sets out requirements for ship management companies to implement and maintain a Safety Management System (SMS) by the company and on board in order to ensure the safe management and operation of vessels.

- **International Ship and Port Facility Security Code (ISPS Code)**

Stipulates requirements for ship management companies to implement and maintain a Ship Security Plan (SSP) on board in order to ensure the safety and security of vessels and port facilities from threats such as terrorism and pirates.

- **Maritime Labour Convention 2006 (MLC, 2006)**

Stipulates requirements for shipowners to implement and maintain measures to comply with provisions for seafarers' living and working conditions etc. onboard ships in order to improve their occupational health and safety with the aim of fair competition within the shipping industry.

- **International Convention on the Control of Harmful Anti-Fouling System on Ship (AFS)**

In order to protect the marine environment and human health, sets out regulations for the use of anti-fouling hull paint containing tributyltin (TBT) and other organic tin compounds, used to prevent shells and other marine organisms from attaching to the hull.

- **International Convention for the Control and Management of Ship's Ballast Water and Sediments (BWM)**

Stipulates regulations for appropriate ballast water management on vessels in order to protect the marine environment from potentially harmful organisms contained in ballast water discharge.

- **Ship Recycling Convention (HKC)**

Stipulates requirements for implementing safe and environmentally sound recycling for ships and ship recycling facilities for the purpose of worker safety and protection of the surrounding environment in the dismantling and recycling of old ships.

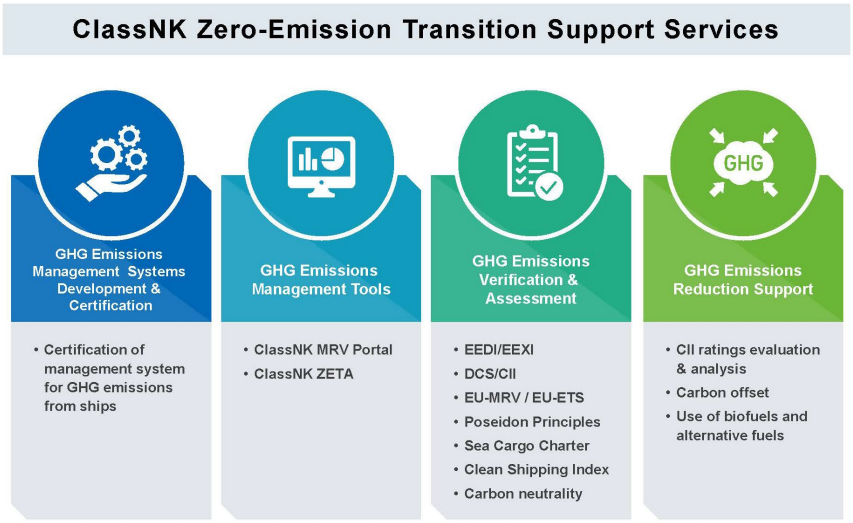
In addition to international treaties, we also carry out a number of services related to regional regulations by the EU and other countries.

Zero-Emission Transition Support Services

We provide a comprehensive menu of services to support management of GHG emissions from ships.

The shift toward a zero-emission society has accelerated in various fields, with governments making their GHG targets more ambitious and sustainable finance gaining more attention. Likewise, the time has come for the maritime industry to systematically manage the GHG emissions from shipping, as represented by the introduction of a GHG emissions evaluation framework into international shipping.

ClassNK provides Zero-Emission Transition Support Services, a comprehensive menu of services to support customers in dealing with the various challenges they may encounter when managing GHG emissions in pursuit of zero-emission shipping.

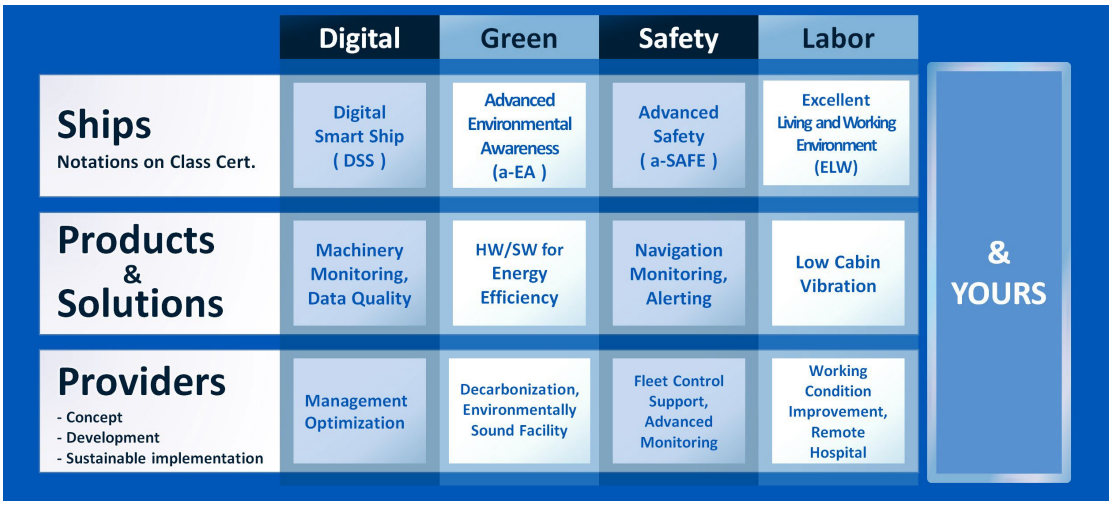


Zero-Emission Transition Support Services Website

Innovation Endorsement

In order to support innovative technologies and initiatives, we offer third-party certification to endorse its feasibility and value.

As companies pursue ESG management and the SDGs to realize a sustainable society, various innovations have been vital to resolve challenges. For the spread of innovative technologies, ClassNK has offered Innovation Endorsement as a swift certification service in cooperation with technological front runners, while establishing evaluation criteria.



Innovation Endorsement Website

Technical Services

We conduct various certifications as a third party utilizing our technical knowledge and experience cultivated over many years through classification services.

Appraisal and certification services

- Underwriter survey
- Ship condition, damage, and seaworthiness survey
- Ship design, strength evaluation
- Condition Assessment Program (CAP)
- Certification of tonnage measurement for Suez and Panama Canal
- Certification of conformity with special requirements of each country and region
- Certification of conformity with industry standards, etc.
- Statutory surveys of structures and equipment other than ships

Material testing machines

ClassNK is highly evaluated as an impartial third-party organization that provides testing and inspection services using material testing machines such as uniaxial testing machines (tensile / compression testing machine), impact testing machines, and hardness testing machines in accordance with the ClassNK Rules for Testing Machines and Japan Industrial Standards (JIS).

Government Ship Services

Classification services are not limited to commercial ships but also include government ships such as naval, patrol, training, and work ships.

Recently, regarding overseas expansion in the field of Japanese government ships, there are high expectations from the international community on the transfer of excellent equipment and technology for international cooperation. To contribute to the progress of the transfer of equipment and technology including government ships, ClassNK has developed its "Rules for the Survey and Construction of Governmental and Naval Ships", technical rules that are applied to governmental ships and their onboard equipment and provides the following.

- Development, revision, and abolition of relevant rules
- Class registration of government ships
- Drawing examination and on-site surveys of ships and related products during and after construction
- Superintendent related to ships, etc.
- Digital solutions
- Advisory services
- Training support

Source: JMSDF Kure District HP
https://www.mod.go.jp/msdf/kure/info/gallery/20220422.html

Source: Philippine Coast Guard

Certification Services

To support a variety of businesses, we provide an expanding range of third-party certification services regarding quality, environment, occupational safety and health and other management systems, maritime education and training, greenhouse gas emissions, etc.

Management systems

- ISO9001 (Quality Management Systems) Certification
- ISO14001 (Environmental Management Systems) Certification
- ISO45001 (Occupational Health and Safety Management Systems) Certification
- ISO39001 (Road Traffic Safety Management Systems) Certification
- ISO50001 (Energy Management Systems) Certification
- Cyber Security Management Systems Certification
- HSE (Health, Safety & Environment) Management Systems Certification
- Bio Safety Management Systems Certification

Greenhouse Gas (GHG)

- GHG Emission Verification based on ISO14064
- SHIFT Program (Commissioned by Japan's Ministry of the Environment)
- J-Credit Scheme (Commissioned by Japan's Ministry of Economy, Trade and Industry)
- GHG Emissions Verification of international civil aviation (ICAO CORSIA)
- Environmental Performance Verification
- Clean Cargo Working Group (CCWG) Verification
- Verification relating to Green Steels

⇒ p.6 ClassNK Zero-Emission Transition Support Services

Seafarer Training

- Certification of Maritime Education & Training
- Training Course for Maritime Instructors

Occupational Environment and Labor

- Seafarer Recruitment and Placement Service Certification
- Japan's Evaluation test for specified skills in field of Shipbuilding and Ship Machinery Industries
- Working environment certification of land transportation providers commissioned by Japan's Ministry of Land, Infrastructure, Transport and Tourism

Unmanned Aircraft

- Inspection for Unmanned Aircraft Certification and Unmanned Aircraft Remote Pilot Certificate (License) Test designated by Japan's Ministry of Land, Infrastructure, Transport and Tourism

Renewable Energy

To support the industry's growing needs for renewable energy technologies such as wind power generation, we provide certification services that contribute to the creation of a low-carbon and decarbonized society.

Wind Energy

We provide various certification services for wind power generator manufacturers and operators including but not limited to the IEC61400 series, which is the international standard for wind turbines. ClassNK verifies wind power facilities as a body registered by Japan's Ministry of Economy, Trade and Industry, and our certifications are utilized in examinations required by relevant laws in Japan.

- Large wind turbine type certification
- Small wind turbine type certification
- Windfarm certification
- Project certification
- Surveys and certification for floating offshore wind turbines
- Tower and support structure certification
- Periodic safety management examinations in accordance with Japan's Electricity Business Act

Marine Renewable Energy

We carry out a variety of certification services for marine renewable energy converters such as type approval of power generation systems related to marine renewable energy including wave energy, tidal and marine, ocean thermal energy conversion, prototype certification for testing, project certification to verify if the facility and its support structure are suited to the installation site, and component verification.

Marine Warranty Survey

A Marine Warranty Survey (MWS) is a service in which a third-party organization designated by a reinsurance company examines and evaluates the construction of offshore facilities (transportation and installation of structures, cable laying, etc.) to ensure the safety and reliability of a project, and it is used as an insurance underwriting condition. ClassNK carries out MWS as an organization approved by major reinsurance companies.

GWO Training Certification

ClassNK provides approved certification services for training providers based on the international training standards for workers in the wind turbine industry established by the GWO (Global Wind Organisation).

Renewable Energy Website

R&D

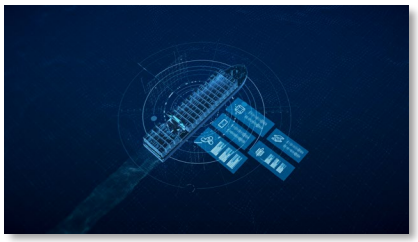
In addition to basic and applied research, ClassNK conducts a variety of R&D activities with technical capabilities at its core in response to changes in the industrial environment and feedback from related industries, in order to develop businesses and contribute to society.

Research and Business Development Roadmap

ClassNK is committed to evolving its business and contributing to the industry and society by conducting its own R&D, primarily related to the classification business, as well as various R&D activities through partnerships with industry players.

Since 2022, we have been promoting R&D activities under the policy shown in its Research and Business Development Roadmap below.

- Research that contributes to the safety of life and property at sea
  - Enables safety assessment of marine systems throughout their life cycle.
  - Supports the development of safe manufacturing technologies by integrating legacy and advanced IT technologies.



- Research that contributes to the conservation of the marine environment
  - Expands technologies that reduce environmental impact and their quantitative assessment.
  - Supports the development of advanced technologies to realize large-scale systems that contribute to conservation of the global environment.

- Research and business development that contributes to innovations that lead society
  - Contributes to innovation in society and the maritime industry through the development of assessment criteria and advanced assessment technology, etc., to certify sophisticated systems and organizations, etc.

We will work to develop a foundation for next-generation certification services by promptly addressing customer needs, expanding our research network, and promoting further collaboration with industry, academia, and government officials.

Core technologies being expanded

- Safety assessment technology
- Concept assessment technology
- Developmental process assessment technology
- Quantitative risk assessment technology
- DX-related technologies such as simulators and digital twin technologies
- Virtual certification technology
- Integration of elemental technologies and experience

Human Resource Development

Based on our experience and knowledge accumulated through many years of surveys and technical research, we actively provide information to contribute to human resource development in the industry as a whole.

ClassNK Academy & Technical Seminar

ClassNK has been holding "ClassNK Academy", an education and training service, since 2009. We offer a variety of curriculums, including comprehensive learning courses for those involved in ship design, construction, operation and maintenance on different themes including "ship surveys", "international conventions", "ship management", "design technology", "ship in service related" etc.

We also hold technical seminars all over the world to introduce a wider variety of the latest technologies and regulatory trends.

International Activities

We offer our advanced knowledge as a technical expert in the field of international rule development.

ClassNK has contributed its knowledge by dispatching experts to various organizations including the International Maritime Organization (IMO), a specialized agency of the United Nations, the International Association of Classification Societies (IACS), which consists of the world's major class societies, and the International Electrotechnical Commission (IEC).

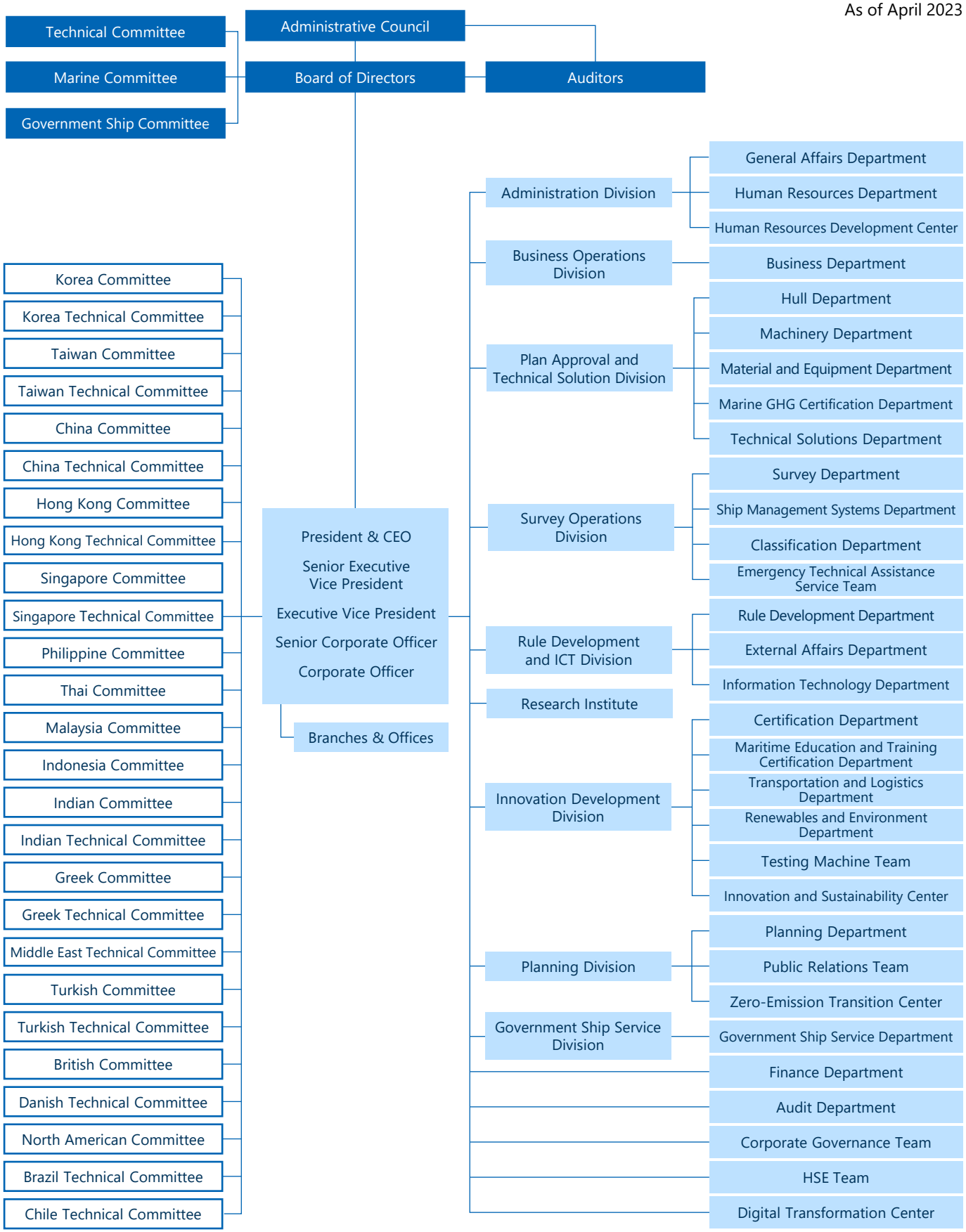
Especially regarding the IACS, ClassNK has been a member since its establishment and has assumed chairmanship of the council, the highest body, five times. In addition to leading the establishment of Unified Requirements (UR) and Unified Interpretations (UI), which are common rules of the IACS Member Association, we also participate in organizational management, actively ensuring that IACS activities are carried out fairly and transparently.

In addition, we have established ClassNK Committees and Technical Committees, inviting industry leaders and experts from all over the world to support the development of the maritime industry in these regions.

Organization

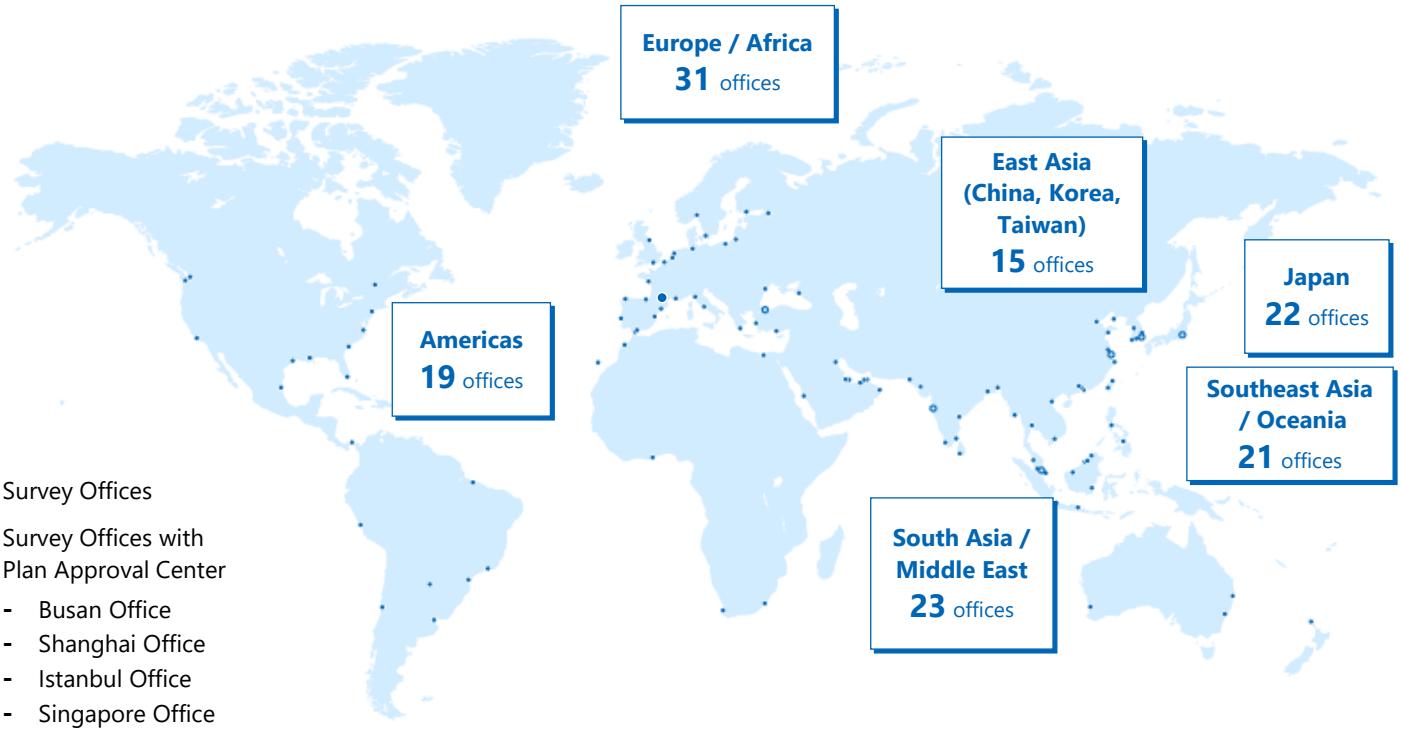
As an impartial and fair third-party certification body, we carry out business under a strict governance system.

As of April 2023



Service Network

With approximately 130 dedicated survey offices in more than 50 countries located in major ports and maritime cities around the world, we provide services 24 hours a day, 365 days a year.



- Survey Offices
- Survey Offices with Plan Approval Center
  - Busan Office
  - Shanghai Office
  - Istanbul Office
  - Singapore Office
  - Mumbai Office

ClassNK Group

ClassNK and its group companies offer a variety of solutions for safety, environmental, digital and other industry challenges.

Ship Data Center

ShipDC

Ship Data Center operates IoS-OP (Internet of Ships Open Platform) for sharing the ship operation data, and the participant-led organization IoS-OP Consortium, to realize fair and equitable data distribution with the aim of creating innovation and maximizing opportunities for business improvement. It also provides services such as human resource development and webinar planning by leveraging its expertise in that operation.

NAPA

NAPA

With its head office in Finland and branch offices in 10 countries around the world, NAPA provides software that improves the safety, efficiency and productivity of ship design and operation. 95% of the world's newbuildings are designed by users of the company's software.

SDGs Mapping of ClassNK Business Activities

For the sustainable development of the entire society, ClassNK perform business in consideration of the environment (E) and social (S) and establish sound governance (G). ClassNK is contributing the achievement of the UNs' SDGs.

Business activities	Related SDGs
Safety surveys / audits in line with ClassNK technical rules and regulations including Load Line and SOLAS	14 LIFE BELOW WATER
Environmental surveys / audits in line with ClassNK technical rules and regulations including MARPOL (Oil / hazardous liquid substances / sewage / waste / air pollution), BWM, AFS, and HKC	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, 13 CLIMATE ACTION, 14 LIFE BELOW WATER
Working condition inspections in line with regulations including MLC	4 QUALITY EDUCATION, 8 DECENT WORK AND ECONOMIC GROWTH
R&D (rule development / survey technology innovation / marine environmental protection / revolutionary technology development)	7 AFFORDABLE AND CLEAN ENERGY, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 13 CLIMATE ACTION, 14 LIFE BELOW WATER, 17 PARTNERSHIPS FOR THE GOALS
Certifications on renewable energy	7 AFFORDABLE AND CLEAN ENERGY, 13 CLIMATE ACTION
Certifications on management systems, HSE, GHG emissions, seafarer training institutions, working condition, and transportation and logistics	3 GOOD HEALTH AND WELL-BEING, 4 QUALITY EDUCATION, 8 DECENT WORK AND ECONOMIC GROWTH, 13 CLIMATE ACTION, 11 SUSTAINABLE CITIES AND COMMUNITIES
ClassNK Academy and other training services	4 QUALITY EDUCATION, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
Provision of support on design / construction / operation and regulatory requirement, software for optimization, and any solutions related to industry challenges	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, 13 CLIMATE ACTION, 14 LIFE BELOW WATER
Ensuring management base (human resources, governance)	4 QUALITY EDUCATION, 5 GENDER EQUALITY, 8 DECENT WORK AND ECONOMIC GROWTH, 10 REDUCED INEQUALITIES, 16 PEACE, JUSTICE AND STRONG INSTITUTIONS

ClassNK | SUSTAINABLE DEVELOPMENT GOALS

We support the Sustainable Development Goals

Introduction to ClassNK
[English]

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