

IACS

INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES

CLASSIFICATION SOCIETIES - WHAT, WHY and HOW?



Leading the way: dedicated to safe ships and clean seas, IACS Members make a unique contribution to maritime safety and regulation through technical support, compliance verification and research and development. More than 90% of the world's cargo carrying tonnage is covered by the classification design, construction and through-life compliance Rules and standards set by the Member Societies of IACS.

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A INTRODUCTION

A1 Classification Societies today

The purpose of a Classification Society is to provide classification and statutory services and assistance to the maritime industry and regulatory bodies as regards maritime safety and pollution prevention, based on the accumulation of maritime knowledge and technology.

The objective of ship classification is to verify the structural strength and integrity of essential parts of the ship's hull and its appendages, and the reliability and function of the propulsion and steering systems, power generation and those other features and auxiliary systems which have been built into the ship in order to maintain essential services on board. Classification Societies aim to achieve this objective through the development and application of their own Rules and by verifying compliance with international and/or national statutory regulations on behalf of flag Administrations.

The vast majority of commercial ships are built to and surveyed for compliance with the standards laid down by Classification Societies. These standards are issued by the Society as published Rules.



A vessel that has been designed and built to the appropriate Rules of a Society may apply for a certificate of classification from that Society.

However, such a certificate does not imply, and should not be construed as, a warranty of safety, fitness for purpose or seaworthiness of the ship. It is an attestation only that the vessel is in compliance with the Rules that have been developed and published by the Society issuing the classification certificate. Further, Classification Societies are not guarantors of safety of life or property at sea or the seaworthiness of a vessel because the Classification Society has no control over how a vessel is manned, operated and maintained between the periodical surveys which it conducts.

More than 50 organizations worldwide define their activities as providing some form of marine classification services; however, not all meet the definition given in Appendix 1. Some that do (listed in Appendix 2) form the International Association of Classification Societies (IACS). It is estimated that the Members of IACS collectively class over 90 percent of all commercial tonnage involved in international trade worldwide.

Classification is one element within the maritime safety regime. Others with a responsibility for or interest in promoting maritime safety include shipowners, shipbuilders, flag State administrations, port State control authorities, underwriters, shipping financiers, charterers, and, of course, seafarers.

The role of classification and Classification Societies has been recognized in the International Convention for the Safety of Life at Sea, (SOLAS) and in the 1988 Protocol to the International Convention on Load Lines. This statutory role is addressed later in this note.

As an independent, self-regulating, externally audited, body, a Classification Society has no commercial interests related to ship design, ship building, ship ownership, ship operation, ship management, ship maintenance or repairs, insurance, or chartering. In establishing its Rules, each Classification Society may draw upon the advice and review of members of the industry and academia who are considered to have relevant knowledge or experience.

Classification Rules are developed to establish standards for the structural strength of the ship's hull and its appendages, and the suitability of the propulsion and steering systems, power generation and those other features and auxiliary systems which have been built into the ship to assist in its operation. Classification Rules are not intended as a design code and in fact cannot be used as such.

A vessel built in accordance with the applicable Rules of an IACS Member Society may be assigned a class designation by the Society on satisfactory completion of the relevant surveys. For ships in service, the Society carries out surveys to verify that the ship remains in compliance with those Rules. Should any defects that may affect class become apparent, or damages be sustained between the relevant surveys, the owner is required to inform the Society concerned without delay.

The classification of a vessel is based on the understanding that the vessel is loaded, operated and maintained in a proper manner by competent and qualified crew or operating personnel.

A vessel may be maintained in class provided that, in the opinion of the Society concerned, it remains in compliance with the relevant Rules, as ascertained by periodic or non-periodic survey.

In developing its Rules, a Classification Society typically relies on empirical experience gained from classing a wide variety of ship types over many years, coupled with appropriate research that contributes towards the on-going development of relevant, advanced technical requirements.

Classification Societies are often simply referred to as 'Class Societies' or just 'Class' ('class').

A2 Why 'Classification'?

In the second half of the 18th century, marine insurers, based at Lloyd's coffee house in London, developed a system for the independent technical assessment of the ships presented to them for insurance cover. In 1760 a Committee was formed for this purpose, the earliest existing result of their initiative being *Lloyd's Register Book* for the years 1764-65-66.

At that time, an attempt was made to 'classify' the condition of each ship on an annual basis. The condition of the hull was classified A, E, I, O or U, according to the excellence of its construction and its adjudged continuing soundness (or otherwise). Equipment was G, M, or B: simply, good, middling or bad. In time, G, M and B were replaced by 1, 2 or 3, which is the origin of the well-known expression 'A1', meaning 'first or highest class'.

The concept of classification slowly spread to other countries and insurance markets. Bureau Veritas (BV) was founded in Antwerp in 1828, moving to Paris in 1832. 'Lloyd's Register of British and Foreign Shipping' was reconstituted as a self-standing 'Classification Society' in 1834; Rules for construction and survey were published the same year.

RINA (previously Registro Italiano Navale) dates from 1861; American Bureau of Shipping (ABS) traces its origins back to 1862. Adoption of common Rules for ship construction by Norwegian insurance societies in the late 1850s led to the establishment of Det Norske

Veritas (DNV) in 1864. Germanischer Lloyd (GL) was formed in 1867 and Nippon Kaiji Kyokai (ClassNK) in 1899. The Russian Maritime Register of Shipping (RS) was an early offshoot of the River Register of 1913. More recent foundations have been Polish Register of Shipping (PRS) in 1936; Yugoslav Register of Shipping (now the Croatian Register of Shipping (CRS)), 1949; China Classification Society (CCS), 1956; Korean Register of Shipping (KR), 1960; and Indian Register of Shipping (IRS), 1975.

As the classification profession evolved, the practice of assigning different classifications has been superseded, with some exceptions. Today a vessel either meets the relevant Class Society's Rules or it does not. As a consequence it is either 'in' or 'out' of 'class'. However, each of the Classification Societies has developed a series of notations that may be granted to a vessel to indicate that it is in compliance with some additional voluntary criteria that may be either specific to that vessel type or that are in excess of the standard classification requirements.

A3 The International Association of Classification Societies - IACS

IACS can trace its origins back to the International Load Line Convention of 1930 and its recommendations. The Convention recommended collaboration between Classification Societies to secure "*as much uniformity as possible in the application of the standards of strength upon which freeboard is based...*".

Following the Convention, RINA hosted the first conference of major Societies in 1939 - also attended by ABS, BV, DNV, GL, LR and NK - which agreed on further cooperation between the Societies.

A second major Class Society conference, held in 1955, led to the creation of Working Parties on specific topics and, in 1968, to the formation of IACS by seven leading Societies. The value of their combined level of technical knowledge and experience was quickly recognised. In 1969, IACS was given consultative status with the International Maritime Organization (IMO). It remains the only non-governmental organization with Observer status which is able to develop and apply Rules.

Compliance with the IACS Quality System Certification Scheme (QSCS) is mandatory for IACS Membership. Full details of the scheme are available on the IACS website.



IACS is governed by a Council, with each Member represented by a senior management figure.

Under the Council is the General Policy Group (GPG), made up of a senior manager from each Member, which develops and implements actions giving effect to the policies, directions and long term plans of the Council.

The chair of GPG is taken by the Member holding the Council chair. IACS's technical work is undertaken generally through specialist Working Groups overseen by GPG.

The Association maintains a Secretariat in London and a QSCS Operations Centre in Southampton, UK.

The IACS Charter, Procedures, details of the work programme, technical Resolutions and other publications are all available on the IACS website.

B CLASSIFICATION

B1 Scope of classification

Implementing the published Rules, the classification process consists of:

- A technical review of the design plans and related documents for a new vessel to verify compliance with the applicable Rules;
- Attendance at the construction of the vessel in the shipyard by a Classification Society surveyor(s) to verify that the vessel is constructed in accordance with the approved design plans and classification Rules;
- Attendance by a Classification Society surveyor(s) at the relevant production facilities that provide key components such as the steel, engine, generators and castings to verify that the component conforms to the applicable Rule requirements;
- Attendance by a Classification Society surveyor(s) at the sea trials and other trials relating to the vessel and its equipment prior to delivery to verify conformance with the applicable Rule requirements;
- Upon satisfactory completion of the above, the builder's/shipowner's request for the issuance of a class certificate will be considered by the relevant Classification Society and, if deemed satisfactory, the assignment of class may be approved and a certificate of classification issued;
- Once in service, the owner must submit the vessel to a clearly specified programme of periodical class surveys, carried out onboard the vessel, to verify that the ship continues to meet the relevant Rule requirements for continuation of class.

Class Rules do not cover every piece of structure or item of equipment on board a vessel, nor do they cover operational elements. Activities which generally fall outside the scope of classification include such items as: design and manufacturing processes; choice of type and power of machinery and certain equipment (e.g. winches); number and qualification of crew or operating personnel; form and cargo carrying capacity of the ship and manoeuvring performance; hull vibrations; spare parts; life-saving appliances and maintenance equipment. These matters may however be given consideration for classification according to the type of ship or class notation(s) assigned.



It should be emphasized that it is the shipowner who has the overall responsibility for the safety and integrity of a vessel, including the manner in which it is operated and maintained. The effectiveness of classification depends upon the shipbuilder, during construction, and the shipowner, once the vessel enters service, cooperating with the Class Society in an open and transparent manner on all issues which may affect its class status. For the shipowner, this particularly requires acting in good faith by disclosing to the Class Society any damage or deterioration that may affect the vessel's classification status. If there is the least question, the owner should notify class and schedule a survey to determine if the vessel is in compliance with the relevant class standard.

A Class surveyor may only go on board a vessel once in a twelve-month period. At that time it is neither possible nor expected that the surveyor scrutinize the entire structure of the vessel or its machinery. The survey involves a sampling, for which guidelines exist based upon empirical experience and the age of the vessel which may indicate those parts of the vessel or its machinery that may be subject to corrosion, or are exposed to the highest incidence of stress, or may be likely to exhibit signs of fatigue or damage.

B2 Assignment, maintenance, suspension and withdrawal of class

Class is assigned to a vessel upon the completion of satisfactory review of the design and surveys during construction undertaken in order to verify compliance with the Rules of the Society. For existing vessels, specific procedures apply when they are being transferred from one Class Society to another.

Ships are subject to a through-life survey regime if they are to be retained in class. These surveys include the class renewal (also called "special survey"), intermediate survey, annual survey, and bottom/docking surveys of the hull. They also include tailshaft survey, boiler survey, machinery surveys and, where applicable, surveys of items associated with the maintenance of additional class notations (see Appendix 1).

The surveys are to be carried out in accordance with the relevant class requirements to confirm that the condition of the hull, machinery, equipment and appliances is in compliance with the applicable Rules.



It is the owner's responsibility to properly maintain the ship in the period between surveys. It is the duty of the owner, or its representative, to inform the Society of any events or circumstances that may affect the continued conformance of the ship with the Society's Rules.

Where the conditions for the maintenance of class are not complied with, class may be suspended, withdrawn or revised to a different notation, as deemed appropriate by the Society when it becomes aware of the condition.

B3 Classification surveys

A classification survey is a visual examination that normally consists of:

- an overall examination of the items identified in the Rules for survey;
- detailed checks of selected parts, on a sampling basis;
- witnessing tests, measurements and trials where applicable.

When a surveyor identifies corrosion, structural defects or damage to hull, machinery and/or piece of equipment which, based on the Society's Rules and in the opinion of the surveyor, affects the ship's class, remedial measures and/or appropriate recommendations/conditions of class are specified in order to retain class.

'Recommendation' and 'condition of class' are different terms used by IACS Societies for the same thing i.e. requirements to the effect that specific measures, repairs, request for surveys etc., are to be carried out within a specified time limit in order to retain class.

Each classed vessel is subject to a specified programme of periodic surveys after delivery. These are based on a five-year cycle and consist of annual surveys, an intermediate

survey and a class renewal/special survey (held every 5 years). The rigour of each specified survey increases with the age of the vessel.

The class renewal surveys/special surveys include extensive in-water and, in most cases, out-of-water examinations to verify that the structure, main and essential auxiliary machinery, systems and equipment of the ship remain in a condition which satisfies the relevant Rules. The examination of the hull is supplemented, when specified, by ultrasonic thickness measurements and the witnessing of tests as specified in the Rules and as deemed necessary by the attending surveyor. The survey is intended to assess whether the structural integrity remains in conformance with the standards contained in the relevant Rules and to identify areas that exhibit substantial corrosion, significant deformation, fractures, damages or other structural deterioration.

Depending upon the age, size, type and condition of the vessel, the renewal/special survey may take several weeks to complete.

The intermediate survey (held approximately half way between special surveys) includes examinations and checks as specified in the Rules to determine whether the ship remains in a general condition which satisfies the Rule requirements. According to the type and age of the ship, drydocking may be required and the examinations of the hull may be supplemented by ultrasonic thickness measurements as specified in the Rules and where deemed necessary by the attending surveyor.



At the time of annual surveys, the ship is generally examined. The survey includes an external general inspection of the hull, equipment and machinery of the ship and some witnessing of tests, so far as is necessary and practical in order to determine whether the ship remains in a general condition which satisfies the Rule requirements. Older ships of certain types may also be subject to a general examination of some specified internal areas of the hull. Depending upon the age, size, type and condition of the vessel, an annual survey may take from several hours to a few days to complete.

C DEVELOPMENT OF RULES, REGULATIONS AND GUIDANCE

C1 Historical development

Classification Rules have been developed over many years by each Society through extensive research and development and service experience. In addition, certain Unified Requirements have been agreed by IACS Members and transposed into the individual Members' Rules.

As outlined later, 'statutory' requirements are developed at IMO and where necessary, Unified Interpretations of them are adopted by IACS.

C2 Future development

Rules and Regulations are subject to constant refinement based upon additional research or practical experience.

Ultimately it is up to the international community, as expressed through their governmental representation at the IMO, to determine the acceptable level of risk associated with the conduct of marine transport. These standards may be prescriptive or goal-based. In the former case, the Class Societies may develop Unified Interpretations, under the aegis of IACS, which clarify the intent and application of the international standards. In the latter case of goal-based standards, the IMO may establish broad requirements and then leave it to the Classification Societies to develop the detailed Rules that will allow industry to meet those targets. The current focus of the IMO is a new and transparent goal-based regulatory framework for hull structures of oil tankers and bulk carriers. This represents a significant change to the current complex system of largely prescriptive statutory international and national regulations, classification rules and industry standards.

The basic principle is to establish clear, demonstrable and verifiable goals to the effect that a properly built, operated and maintained ship should provide minimal risk to its cargo and crew and to the environment for a specified operational life. This goal-based approach aims at moving the regulatory framework from a culture of compliance, governed by prescriptive Rules, to a culture of benchmarking, backed by functional risk-based requirements. It is intended that those goals may be achieved by alternative designs that offer an equivalent level of safety, while promoting new technology and greater innovation within the shipping industry.



Within the framework set at the IMO, it is the role of IACS Members to develop the specific Rule criteria to support the goals. It is intended that these Rules will be "common" to all IACS Societies.

Existing Common Rules for hull structures of oil tankers and bulk carriers were adopted in December 2005 for implementation on 1 April 2006. This was an ambitious project and

one of the most important single steps in the development of maritime Rules that IACS has been involved with.

C3 IACS Resolutions

C3.1 General

In addition to the Common Rules projects, IACS Resolutions on technical or procedural matters may be developed, generally through specialist Working Groups overseen by the General Policy Group (GPG).

The categories of Resolution are listed below and may be found on the IACS website.

C3.2 Unified Requirements

As defined in Annex 4 of the IACS Charter, Unified Requirements (UR) are minimum technical requirements adopted by the IACS Members which, subject to ratification by the governing body of each Member, are to be incorporated in their Rules and practices. URs set forth minimum requirements; each IACS Member remains free to adopt more stringent requirements.

URs are relevant to matters directly connected to or covered by specific Rule requirements and practices of Classification Societies and the general philosophy on which the Rules and practices of Classification Societies are established.

The existence of a UR does not oblige a Member Society to issue respective Rules if it chooses not to have Rules for the type of ship or maritime structure concerned.

Reservations: Since each Member has its own Governing Body, a situation may arise where certain aspects not foreseen during the draft UR development process, or external review, are found unsuitable to the Governing Body of a Member Society. In such a case, that Society is obliged to notify the others of the situation by declaring a reservation to all or part of the UR and provide technical reasons for the reservation. The status of each UR is posted on the IACS website.

C3.3 Common Rules

Common Rules are IACS URs covering broad areas of classification requirements which, once adopted by IACS Council, shall be applied by all Members without the possibility of reservations.

As defined in Annex 4 of the IACS Charter, IACS Common Structural Rules (CSR) are a comprehensive set of minimum requirements for the classification of the hull structures of bulk carriers and double-hull oil tankers, in relation to which the contract for construction was signed on or after 1 April 2006.

C3.4 Unified Interpretations

As defined in Annex 4 of the IACS Charter, Unified Interpretations (UIs) are Resolutions on matters arising from implementing the requirements of IMO instruments. They provide uniform interpretations of Convention Regulations or IMO Resolutions on those matters which in the Convention are left to the satisfaction of the flag Administration or where more precise wording is found to be necessary.

UIs are circulated to the flag Administrations concerned, as appropriate, and submitted to IMO for information and any follow-up action.

UIs shall be applied by Member Societies to ships whose flag Administration has not issued definite instructions on the interpretation of the Regulations concerned.

C3.5 Procedural Requirements

As defined in Annex 4 of the IACS Charter, IACS Procedural Requirements (PRs) are Resolutions on technical matters of procedure.

Requirements under this category are to be followed by Members and, for parts of some PRs, by the IACS Permanent Secretariat.

PRs adopted shall be incorporated in the practices and procedures of the Members within the periods agreed.

C4 Other Publications

IACS also produces Guidelines and Recommendations, not necessarily on matters of class, on issues which IACS Members consider advice or guidance may be beneficial to the industry.

D SURVEYORS

D1 Qualities and qualifications of Surveyors



A memorandum of 1834 has not been bettered:

“The utmost care and discrimination have been exercised by the Committee in the selection of men of talent, integrity, and firmness as Surveyors, on whom the practical efficacy of the system and the contemplated advantages must so materially depend; the Committee have in their judgement appointed those persons only...who appeared to them to be most competent to discharge the important duties of their situations with fidelity and ability, and to ensure strict and impartial justice to all parties whose property shall come under their supervision.”

The training, qualification and monitoring of surveyors and auditors is governed by the relevant IACS Procedural Requirements.

E STATUTORY CERTIFICATION OF SHIPS

E1 Framework

The United Nations Convention on the Law of the Sea (UNCLOS) is an umbrella convention concerned with many aspects of the sea and its uses, including the granting of registration of a ship by a State. Once a ship is registered, the flag State has certain duties laid out in UNCLOS. In particular, under Article 94, the flag State must *“effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag”* and take *“such measures for ships flying its flag as are necessary to ensure safety at sea.....”*

Under the auspices of the IMO, International Conventions have been agreed which set out uniform requirements in order to facilitate the acceptance of a ship registered in one country in the waters and ports of another and in the general furtherance of safety at sea and the protection of the environment. These requirements are commonly referred to as ‘statutory’ requirements. Broadly, they cover four distinct areas:

- 1) Aspects of the ship’s design and its structural integrity – load line and stability in the intact and damaged condition, essential propulsion, steering equipment, etc.;
- 2) Pollution control with regard to normal ship operation;
- 3) Accident prevention, including navigational aids and pollution and fire prevention;
- 4) The situation after an accident (fire, flooding) including containment and escape.

Some or all of these may also be covered in a particular Class Society’s Rules.



SOLAS Ch II-1, Reg 3-1 states that, in addition to the requirements of the other (SOLAS) regulations, ships shall be designed, constructed and maintained in compliance with the structural, mechanical and electrical requirements of a Classification Society which is recognised by the Administration in accordance with the provisions of regulation XI/1 (see E2 below), or with applicable national standards of the Administration which provide an equivalent level of safety.

Where the result of the classification survey is taken as evidence of compliance with the corresponding statutory requirement, e.g. load line or safety construction (hull, machinery, boilers, electrical equipment, etc.), this survey is de facto given the status of a statutory survey on behalf of the flag Administration, if the Society is acting as its recognised organization in this respect.

When a ship is suspended or withdrawn from class, the IACS Member concerned notifies the relevant flag Administration and publishes the information e.g. on its website and on

Equasis¹. As a consequence, the flag Administration generally invalidates the statutory certificates concerning construction and equipment.

E2 Recognised Organizations

SOLAS and the other International Conventions permit the flag Administration to delegate the inspection and survey of ships to a Recognised Organization (RO). This is in recognition of the fact that many flag Administrations do not have adequate technical experience, manpower or global coverage to undertake all the necessary statutory inspections and surveys using its own staff. The degree to which a flag State may choose to delegate authority to a RO (Class Society) is for each flag State to decide, with the authority granted being clearly identified in the relevant memoranda of understanding agreed between the Class Society and the Administration. In most cases the RO is empowered to require repairs or other corrective action to a ship and to withdraw or invalidate the relevant certificate if the necessary action is not taken (e.g. SOLAS Chapter I, Reg 6).

IMO Resolution A.739(18) lays down mandatory minimum requirements for ROs.

Fundamentally it requires the organization to demonstrate its technical competence and to be governed by the principles of ethical behaviour. The RO is to be subject to the certification of its quality system by an independent body of auditors accepted by the Administration.



A.739(18), together with Resolution A.789(19), which presents specifications on the survey and certification functions of ROs, provides the criteria and framework which a flag must be satisfied is met by their ROs. IACS Members have been found to meet Resolutions A.739(18) and A.789(19) by all of the Administrations (approximately 100) that are Parties to SOLAS.

The RO is responsible and accountable to the flag Administration for the work that it carries out on its behalf. The principles of the inspection and survey work are to a very large extent the same as in respect of classification surveys, that is, the verification by the RO that a ship is in compliance with applicable requirements at the time of the survey or inspection. The scopes of these inspections and surveys are laid down by the relevant national laws based on International Conventions to which the Government is a signatory, together with additional instructions that may be issued by the flag Administration.

IACS Members generally do not undertake 'statutory' work on ships that they do not themselves class. The significant exceptions to this policy are International Safety Management (ISM) Code and International Ship and Port Facility Security (ISPS) Code certification where it may be efficient for a Company to implement a common Safety Management System (SMS) or Ship Security Plan (SSP) on a fleet basis as that fleet may be classed by more than one Society. However, systems are in place for the classing Society to inform the owner, the ISM certifying Society and/or the flag Administration in cases where there is reason to doubt the continuing effectiveness of the SMS or SSP.

¹ www.equasis.org

APPENDIX 1 – THE LANGUAGE OF CLASSIFICATION AND SURVEYS

1 CLASSIFICATION SOCIETIES - DEFINITION

The following definition applies in respect of the membership of IACS.

A Classification Society is an organisation which:

- (i) publishes its own classification Rules (including technical requirements) in relation to the design, construction and survey of ships², and has the capacity to (a) apply, (b) maintain and (c) update those Rules and Regulations with its own resources on a regular basis;
- (ii) verifies compliance with these Rules during construction and periodically during a classed ship's service life;
- (iii) publishes a register of classed ships;
- (iv) is not controlled by, and does not have interests in, ship-owners, shipbuilders or others engaged commercially in the manufacture, equipping, repair or operation of ships; and
- (v) is authorised by a Flag Administration as defined in SOLAS Chapter XI-1, Regulation 1 and listed accordingly in the IMO database, Global Integrated Shipping Information System (GISIS).

2 CLASSIFICATION NOTATIONS

Classification notations are indicative of the specific Rule requirements which have been met. Additional voluntary notations are offered by individual Societies and may be selected by an owner wishing to demonstrate that the vessel conforms to a particular standard that may be in excess of that required for classification. Depending on the Classification Society, the classification notations are assigned to the ship according to ship type, service, navigation and/or other criteria which have been provided by the owner and/or builder, when requesting classification.

Classification notations assigned to a ship are indicated on the certificate of classification as well as in the Register of Ships published by the Society. These notations can be generalized by the following types which may be used in combination:

- main class symbol;
- construction marks;
- service notations with additional service features, as applicable;
- navigation notations;
- geographic notations;
- additional class notations.



² "ships" are defined as any ships subject to SOLAS safety certification and capable of unrestricted navigation.

2.1 Class symbol

The main class symbol indicates the compliance of the ship with specific Rule requirements regarding its construction.

2.2 Construction mark

The construction mark, when assigned, identifies the procedure under which the ship and its main equipment or arrangements have been surveyed for initial assignment of the class.

2.3 Service notations

The service notations, when assigned, define the type and/or service of the ship which has been considered for its classification.

A ship may be assigned several different service notations. In such case, the specific Rule requirements applicable to each service notation will have been complied with.

2.4 Navigation and operating area notations

Navigation notations

Some Classification Societies define limiting areas for navigation (e.g. coastal waters, and sheltered waters), and/or limiting environmental conditions for certain types of ships and marine structures.

The assignment of restricted navigation notations may include the reduction of scantlings or specific arrangements.

The assignment of a navigation notation by Classification Societies does not absolve the owner from compliance with any applicable international and/or national regulations established by the Administrations for ships operating in national waters, or a specific area, or a navigation zone.

Operating or service area notations

The operating area notation specifies the service area where the ship (e.g. dredgers, crane pontoons, port tugs) can operate as regards its assigned class.

2.5 Additional class notations

Each of the Classification Societies has developed a series of notations that may be granted to a vessel to indicate that it is in compliance with some additional voluntary criteria that may be either specific to that vessel type or that are in excess of the standard classification requirements.

3 ASSIGNMENT, MAINTENANCE, SUSPENSION AND WITHDRAWAL OF CLASS

3.1 Assignment of class

Class is assigned to a ship upon the completion of satisfactory surveys, held to verify that the vessel is in compliance with the relevant Rules of the Society. This assignment may be given in the following cases:

- on completion of the new building, after satisfactory surveys have been performed;
- on completion of a satisfactory survey of an existing ship carried out in accordance with the agreement developed by the IACS Member Societies for ships transferring class between Members; or

- on completion of a satisfactory specific class survey of an existing ship not classed with an IACS Society, or not classed at all.

3.2 Maintenance of class

Classed ships are subject to surveys for maintenance of class. These surveys include the class renewal (also called "special survey"), intermediate, annual, and bottom/docking surveys (either a survey in dry dock or an in-water survey) of the hull, tailshaft survey, boiler survey, machinery surveys and surveys for the maintenance of additional class notations, where applicable. Such surveys are carried out at the intervals and under the conditions given below.

The surveys are to be carried out in accordance with the relevant requirements in order to confirm that the condition of the hull, machinery, equipment and appliances comply with the applicable Rules. It is the owner's duty to ensure that the ship's maintenance is kept at a satisfactory level in order to maintain the condition between surveys.

The extent of any survey depends upon the condition of the ship and its equipment. In addition to the minimum required extent of surveys specified in the Rules, should the surveyor have a doubt as to the maintenance or condition of the ship or its equipment, or be informed by the owner of any deficiency or damage which may affect class, further examination and testing may be conducted as considered necessary.

3.3 Suspension of class

Class may be suspended following a decision made by the Society when one or more of the following occurs:

- when a ship is not operated in compliance with the Rule requirements;
- when a ship proceeds to sea with less freeboard than that assigned;
- when the owner fails to request a survey after having detected defects or damages affecting the class;
- when repairs, alterations or conversions affecting the class are carried out without requesting the attendance of a surveyor.

In addition, class is automatically suspended:

- when the class renewal/special survey has not been completed by its due date or within the time granted in special circumstances for the completion of the survey, unless the ship is under attendance by the Society's surveyor(s) with a view to completion prior to resuming trading;
- when the annual or intermediate surveys have not been completed by the end of the corresponding survey time windows.

Suspension of class with respect to the above cases will remain in effect until such time as the due surveys and any other survey deemed appropriate by the Society have been completed.

In addition to the circumstances for which automatic suspension may apply, the class of a ship will be subject to suspension procedures following a decision of the Society:

- when a recommendation/condition of class is not dealt with within the time limit specified, unless it is postponed before the due date by agreement with the Society;
- when one or more other surveys are not held by their due dates - or the dates stipulated by the Society also taking into account any extensions granted;
- when, due to the nature of reported defects, the Society considers that a ship is not entitled to retain its class even on a temporary basis (pending necessary repairs or renewals, etc.);
- in other circumstances where the owner fails to submit the ship to a survey in accordance with a special requirement.

In all cases suspension will remain in effect until such time as matters are rectified and the class is reinstated or class is withdrawn.

Depending on the Society's procedures, the suspensions of class which are not automatic may take effect either when they are decided by the Society or from the date when the conditions for suspension occurred. However once the conditions for class suspension/withdrawal are met and before any decision by the Society can be taken, either because the Society is not aware of the circumstances (surveys dates, etc. are recorded but not systematically monitored) or because the decision is not yet taken, maintenance of class cannot generally be confirmed by the Society during this period.

3.4 Withdrawal of class

The Society will withdraw the class of a ship when:

- requested by the owner;
- the class has been suspended for more than six months;
- the ship is reported as a constructive total loss and the owner does not advise his intention to repair the ship for re-instatement of class;
- the ship is reported lost;
- the ship will not trade further as declared by its owner.

Withdrawal of class takes effect from the date on which the circumstances causing such withdrawal occur or when it is decided.

3.5 Notification of suspension or withdrawal

When class is suspended or withdrawn, the Society will at the same time:

- inform the owner, flag Administration and underwriters (the latter at their request);
- publish the information on its website and convey the information to appropriate databases (Equasis, etc.).

4 SURVEYS – AN OVERVIEW OF REQUIREMENTS AND CERTIFICATION

4.1 Definitions and procedures related to classification surveys

Period of certificate of class

The period of the certificate of class starts either from the date of initial classification or from the credited date of the last class renewal/special survey, and expires at the due date assigned for the next class renewal/special survey.

The due date is the end of the time window for that survey.

Anniversary date

The anniversary date is the day and the month given in the certificate of class which corresponds to the expiry date of the certificate.

Survey time window

The survey time window is the fixed period during which the annual and intermediate surveys are to be carried out.



Overdue surveys

Each periodical survey is assigned a due date specified by the relevant Rules by which it is to be completed.

A survey becomes overdue when it has not been completed by its due date. For example, with an anniversary date of 15th April, the annual survey can be validly carried out from 16th January to 15th July. If not completed by 15th July, the annual survey becomes overdue and class will be suspended automatically.

Recommendations/Conditions of Class

'Recommendation' and 'Condition of Class' are different terms used by IACS Societies for the same thing, i.e. requirements to the effect that specific measures, repairs, surveys etc. are to be carried out within a specific time limit in order to retain class.

Memoranda

Other information of assistance to the surveyor and owners may be recorded as 'memoranda' or a similar term. They may, for example, include notes concerning materials and other constructional information. A memorandum may also define a condition which, though deviating from the technical standard, does not affect the class (e.g. slight indents in the shell which do not have an effect upon the overall strength of the hull or minor deficiencies, which do not affect the operational safety of the machinery).

In addition, memoranda could define recurring survey requirements, such as annual survey of specified spaces, or retrofit requirements, which have the de-facto effect of conditions of class.

Specific questions in relation to the meaning of memoranda / recommendations / conditions of class are to be addressed to the Classification Society concerned through the owner of the ship.

4.2 Class surveys periodicity and scope

Class renewal survey / special survey

Class renewal surveys/special surveys are carried out at five-year intervals. However, consideration may be given by the Society, in exceptional circumstances, to granting an

extension for a maximum period of three months after the due date. In such cases the next period of class will start from the due date for the previous class renewal survey before the extension was granted.

The special survey may be commenced at the 4th annual survey and be progressed with a view to completion by the 5th anniversary date.

The class renewal surveys/special surveys include extensive examinations to verify that the structure, main and essential auxiliary machinery, systems and equipment of the ship are in a condition which satisfies the relevant Rules. The examinations of the hull are generally supplemented by thickness measurements and witnessing of tests as specified in the Rules, and as deemed necessary by the attending surveyor, to assess that the structural condition remains effective and to help identify substantial corrosion, significant deformation, fractures, damages or other structural deterioration.

Annual survey

Annual surveys are to be carried out within a window from three months before to three months after each anniversary date.

At the time of annual surveys, the ship is generally examined. The survey includes an inspection of the hull, equipment and machinery of the ship and some witnessing of tests, so far as is necessary and practical in order to verify that, in the opinion of the attending surveyor(s) the ship is in a general condition which satisfies the Rule requirements.

Intermediate survey

An intermediate survey is to be carried out within the window from three months before the second to three months after the third anniversary date.

The intermediate survey includes examinations and checks on the structure as specified in the Rules to verify that the vessel is in compliance with the applicable Rule requirements. The Rule criteria become more stringent with age.

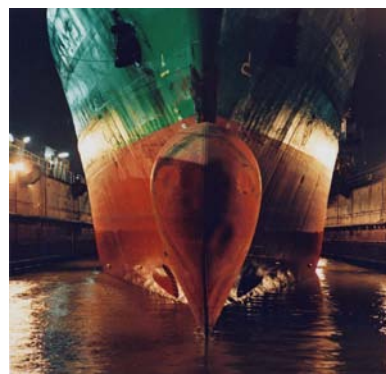
According to the type and age of the ship the examinations of the hull may be supplemented by thickness measurements as specified in the Rules and where deemed necessary by the attending surveyor.

Bottom / Docking survey

A bottom/docking survey is the examination of the outside of the ship's hull and related items.

This examination may be carried out with the ship either in dry dock (or on a slipway) or afloat: in the former case the survey will be referred to as dry-docking survey, while in the latter case as in-water survey. The conditions for acceptance of an in-water survey in lieu of a dry-docking survey will depend on the type and age of the ship and the previous history.

The outside of the ship's hull and related items are to be examined on two occasions in the five-year period of the certificate of class with a maximum of 36 months between surveys.



One of the two bottom/docking surveys to be performed in the five-year period is to be concurrent with the class renewal/special survey.

For ships subject to the Enhanced Survey Programme (ESP) and 15 years of age and above, the intermediate bottom/docking survey is to be carried out in a dry-dock.

Tailshaft survey

A tailshaft survey is the survey of screwshafts and tube shafts (hereafter referred to as tailshafts) and the stern bearing.

The different types of surveys to which tailshafts may be subjected and the intervals are:

- complete survey;
- modified survey;
- partial survey.

Tailshaft complete survey

Tailshafts are to be submitted to complete examination at a periodicity based on the type of shaft and its design. "Complete" means that the shaft is drawn up for examination or that other equivalent means of examination are provided.



Tailshaft modified survey

A modified survey of the tailshaft is an examination which may be accepted at alternate five-yearly surveys for tailshafts provided that the shaft arrangement is in accordance with specific requirements.

Tailshaft partial survey

A partial survey allows a postponement of the complete survey, having a periodicity of 5 years, for 2.5 years.

Boiler surveys

Boilers and thermal oil heaters are to be surveyed twice in every five-year period. The periodicity of the boiler survey is normally 2.5 years.

Steam boilers, superheaters and economisers are examined internally and externally. To this end, boilers are to be drained and suitably prepared for the examination of the water-steam side and the fire side. Where necessary, the external surfaces are to be made accessible for inspection by removal of insulation and lining.

Non-periodical surveys

Such surveys are carried out for example:

- to update classification documents (e.g. change of owner, name of the ship, change of flag);
- to deal with damage or suspected damage, repair or renewal work, alterations or conversion, postponement of surveys or outstanding recommendations/conditions of class;
- At the time of port State control inspections.



In the event of damage which affects or may affect the class of the ship, the owner is to advise the Society without delay.

Arrangements are then made at the earliest opportunity for a surveyor to attend and ascertain the extent of the damage and determine if it is such that the vessel no longer complies with the applicable Rule requirements. Following repair, the surveyor will again assess the status of the vessel to determine if it has been returned to a condition that is in compliance with the applicable Rule requirements.

Any damage in association with wastage over the allowable limits (including buckling, grooving, detachment or fracture), or extensive areas of wastage over the allowable limits, which affects or, in the opinion of the surveyor, will affect the vessel's structural, watertight or weathertight integrity, is to be promptly and thoroughly repaired thereby removing the need for the imposition of any associated condition of classification. Otherwise, damages and partial or temporary repairs considered acceptable by the surveyor for a limited period of time are covered by the issuance of an appropriate recommendation/condition of class.

Damages or repairs required by the surveyor to be re-examined after a certain period of time are also covered by an appropriate recommendation/condition of class.

4.3 Class certificate

Issue of the certificate of classification

A certificate of classification, bearing the class notations assigned to the ship and an expiry date, is issued to all classed ships. This certificate may also be provided with annexes supplying information sufficient for the management of the certificate, for determining the class surveys date and for immediate assessment of possible irregularities (overdue recommendations, etc.).

An interim/provisional certificate of classification may serve as a certificate of classification in certain situations when deemed necessary by the Society.

Validity of the certificate of classification

A certificate of classification, properly endorsed, is valid until the expiry date unless advised otherwise by the Society or provided there are no grounds for suspension or withdrawal of class.

Endorsement of the certificate of classification

When annual and intermediate surveys are satisfactorily completed, the certificate of classification is:

- endorsed for the periodical surveys;

- according to the practice of some Societies, endorsed accordingly with the relevant entries in the appropriate annexes attached to the certificate concerning the outstanding recommendations/conditions of class, if any, and/or the surveys held.

Where applicable, memoranda are also endorsed in the appropriate annex.

4.4 Definitions and procedures related to statutory surveys and inspections

General

A number of the Conventions require an initial survey before a vessel is put in service for the first time and receives its first certificate, and a certificate renewal survey at one, two or five year intervals thereafter, depending on the certificate and type of ship. In addition, for those certificates valid for more than one year, surveys at annual intervals are required, one of which, at approximately half way and termed 'intermediate', may be of greater extent than an ordinary 'annual'. The 'Harmonised System of Survey and Certification' (HSSC) implemented by many Administrations under IMO resolution A.997(25), as amended, brings all SOLAS (except for passenger ships), MARPOL and Load Line Convention surveys into a five-year cycle. With respect of safety equipment surveys, HSSC uses the term 'periodical' instead of 'intermediate', and for radio, 'periodical' instead of 'annual'. These latter take the place of the renewal surveys held under the shorter certificate renewal cycles.

The scope of survey can generally be harmonized with the extents of the classification surveys detailed above and, as far as possible, are held concurrently with them.

The scope of each statutory survey or inspection is laid down by IMO resolutions and generally increases with age. It is to include sufficiently extensive examinations and checks to verify that the structure, machinery, systems and relevant equipment such as the life saving, fire fighting or pollution prevention equipment are in a satisfactory condition and in compliance with the applicable standards.

Between surveys, the Conventions require the flag Administration to make it compulsory for the owner to maintain the ship in conformance with the regulations so that the ship will remain fit to proceed to sea without danger to the ship or persons on board or unreasonable threat of harm to the marine environment.

Initial statutory survey

An initial survey is an inspection of the design and construction of the relevant structure, machinery and equipment of the ship to verify that it complies with the requirements of the applicable regulations.



Renewal statutory survey

A renewal survey is an inspection of the structure, machinery and/or equipment, as applicable, to verify that their condition is in compliance with the requirements of the regulations. Modifications to the ship having a bearing on the conformity of the vessel to the requirements are to be declared by the owner and inspected.

Annual statutory survey

An annual survey, in principle, includes a general inspection of the relevant structure and equipment of the ship to confirm that it has been maintained in accordance with the regulations and is in satisfactory condition.

Intermediate statutory survey

An intermediate survey is an inspection of specified items relevant to the particular certificate to confirm that they are in satisfactory condition. Depending on the certificate concerned and the age of the ship, the scope may range from that of an annual to the equivalent of a renewal survey.

Periodical statutory survey

Periodical surveys generally take the place of renewal surveys for those certificates which previously were renewed after one or two years. However, in the case of a Load Line Certificate which is issued on behalf of, or by, flag Administrations that have not implemented the harmonised system of survey and certification, the five-year renewal survey may be referred to as the 'periodical' survey.



4.5 Statutory certificates

Authorisation

Statutory certificates are issued by the RO in accordance with the terms of its recognition by the flag Administration. Variation of the delegation of statutory authority or certificates that can be issued by the RO exists between Administrations. The Administration should be contacted for specific details of the authorization.

Issue, endorsement and withdrawal

A certificate is issued or endorsed after the relevant surveys are passed. A certificate may be issued, valid for a short time period, listing corrective action to be rectified for minor deficiencies which do not prevent the issuance of a certificate to the ship.

For most Conventions, the Administration empowers the RO to withdraw or invalidate a certificate if the required corrective action is not taken.

APPENDIX 2

1 The Members of IACS

The criteria for membership of IACS are given in the IACS Charter which can be found on the IACS website at 'IACS explained' www.iacs.org.uk/explained/default.aspx .

The Members are:

| | | | |
|-----|-------------------------------|------|---------------------------------------|
| ABS | American Bureau of Shipping | KR | Korean Register of Shipping |
| BV | Bureau Veritas | LR | Lloyd's Register |
| CCS | China Classification Society | NK | Nippon Kaiji Kyokai (ClassNK) |
| CRS | Croatian Register of Shipping | PRS | Polish Register of Shipping |
| DNV | Det Norske Veritas | RINA | RINA |
| GL | Germanischer Lloyd | RS | Russian Maritime Register of Shipping |
| IRS | Indian Register of Shipping | | |

The current membership of IACS, together with website links, can be found on the IACS website at 'IACS explained > Members' www.iacs.org.uk/Explained/members.aspx .

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