Asia Pacific Class

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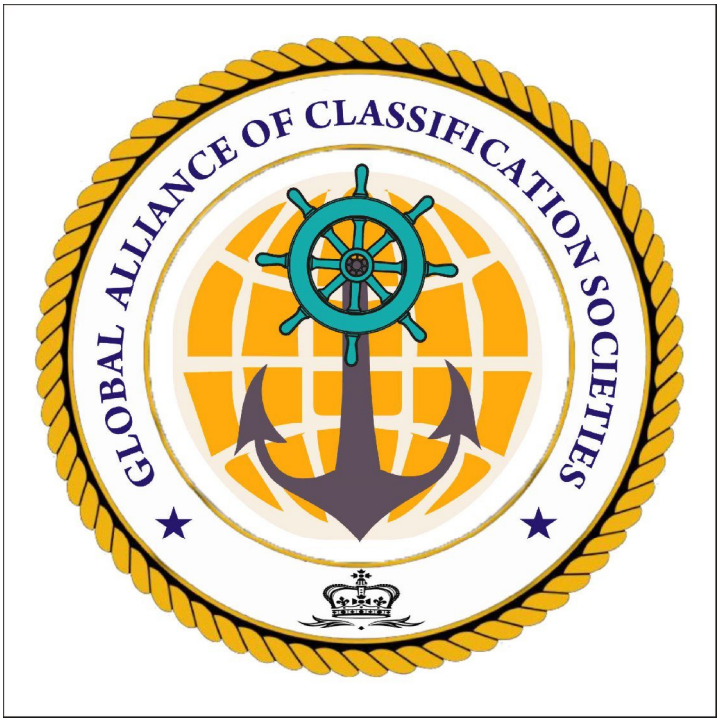

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Section 1

Classification

A. General

1. Scope, prerequisites

1.1 Purpose of the Rules

1.1.1 The Rules for Classification and surveys of inland navigation vessels cover the Classification of inland navigation vessels as defined in 1.2.5.

1.1.2 The Rules published by APC give the require-ments for the assignment and the maintenance of Class for inland navigation vessels.

1.1.3 Class assigned to a vessel reflects the discre-tionary opinion of APC that the vessel, for declared conditions of use and within the relevant time frame, complies with the Rules applicable at the time the service is rendered.

1.1.4 General Terms and Conditions valid at the time of signing of the contract with the party ordering the classification apply.

1.2 General definitions

1.2.1 The following general definitions are used in these Rules.

1.2.2 APC Head Office

APC Head Office means the head office or designated head office department in charge of dealing with Rules and Classification particulars.

1.2.3 Rules

Rules means these Rules for the Classification of inland navigation vessels and documents issued by APC serving the same purpose.

1.2.4 Inland navigation vessel

An inland navigation vessel is a vessel designed and operated for inland navigation and related activities.

1.2.5 Classification

Classification means essentially:

– review/approval of design documents, construc-tion plans and material specifications in com-parison with the applicable Rules, Guidelines and Regulations according to Chapter 2, Chapter 3, Chapter 4 or other applicable Rules of APC

– supervision of construction of newbuildings or conversions

– supervision of vessels in service by surveys required by APC's Rules in order to ascertain that a condition is maintained, which complies with Class requirements

1.2.6 Class designation

The Class designation consists in:

– the Character of Classification, i.e. a sequence of abbreviations indicating the extent of compli-ance with the applicable Rules and the duration of the Class period

– Notations such as type and service Notations, additional Class Notations as well as range of navigation Notations affixed to the Character of Classification, indicating particular features ca-pability, service restrictions or special equip-ment and installations, which are included in the Classification

1.2.7 Period of Class

Period of Class means the period starting either from the date of the initial Classification or from the cred-ited date of the last Class Renewal Survey, and expir-ing at the limit date assigned for the next Class Re-newal Survey.

1.2.8 Surveyor

Surveyor means technical staff acting on behalf of APC to perform tasks in relation to Classification and sur-vey duties.

1.2.9 Survey

Survey means an intervention by the Surveyor for assignment or maintenance of Class as defined in Section 3, or interventions by Surveyor within the limits of the tasks delegated by the Administrations.

1.2.10 Administration / Authorities

Administration/Authorities means the Government of the state in which the vessel is registered or the state under whose authority the vessel is operating in the specific case.

1.2.11 Statutory Rules

Statutory Rules are the national and international Rules and Regulations which apply to the vessel but which are not covered by the Classification.

1.2.12 APC's contractual partner

APC's contractual partner means the party ordering the classification services, which usually is the building yard, a supplier, the owner or operator of the vessel.

1.2.13 Owner

Owner means the Registered Owner or the Disponent Owner or the Manager or any other party responsible for the definition and/or operation of the vessel and having the responsibility to keep the vessel seaworthy, having particular regard to the provisions relating to the maintenance of Class laid down in Section 3.

1.2.14 Review/Approval

Review/Approval means the examination and acceptance by APC of documents, procedures or other items related to Classification, verifying solely their compliance with the relevant Rules requirements, or other referentials where requested.

1.2.15 Type approval

Type approval means an approval process for verifying compliance with the Rules of a product, a group of products or a system, and considered by APC as representative of continuous production.

1.2.16 Building Yard

The Building Yard is the contractual partner of APC ordering the newbuilding classification.

1.2.17 Building specification

The building specification is part of the building con-tract between the Prospective vessel Owner and the Building Yard which specifies the technical parameters and all other details for the construction of the vessel.

1.2.18 Classification specification

The Classification specification is part of the Classification contract between the Building Yard and APC during construction and between the vessel Owner and APC after delivery. It specifies the Rules, Guidelines and Regulations forming the technical basis of the Classification as well as scope and necessary details of the Classification and survey procedures and refers to the building specification as far as necessary.

1.2.19 Sister vessels

Sister vessels are vessels built to the same reviewed/ approved plans for Classification purposes. Sister vessels may have minor design alterations provided such alterations do not affect matters related to Classification.

1.2.20 Memoranda

Any information deemed noteworthy for APC's conven-ience as well as defects and/or deficiencies which do not affect the Class or the maintenance of Class, are to be indicated as memoranda. Memoranda are not to be regarded as conditions of Class. See also Section 3, A.1.4.2.

1.3 Meaning of Classification and limits

1.3.1 The following shall apply unless otherwise specified.

1.3.2 The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the Prospective vessel Owner and the Building Yard. This date is normally to be declared to APC by the ordering client applying for the assignment of Class to a newbuilding, see also D.

Special consideration may be given to applying new or modified Rule requirements which entered into force subsequent to the date of the contract, at the discretion of APC and in the following cases:

– when a justified written request is received from the party applying for Classification

– when the keel is not yet laid and more than one year has elapsed since the contract was signed

– where it is intended to use existing previously approved plans for a new contract

Requests for interventions by APC, such as request for Classification, surveys during construction, surveys of vessels in service, tests, etc., are in principle to be submitted in writing and signed by the Prospective vessel Owner or the Building Yard. Such request implies that the applicant will abide by all the relevant requirements of the Rules and the General Terms and Conditions of APC.

1.3.3 The date of "contract for construction" of a series of sister vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the Prospective vessel Owner and the Building Yard.

The optional vessels will be considered part of the same series of sister vessels if the option is exercised not later than one year after the contract to build the series was signed.

1.3.4 If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract is signed between the Prospective vessel Owner and the Building Yard. The amendment to the contract is to be considered as a "new contract" to which 1.3.2 and

1.3.3 apply.

1.3.5 The above procedures for application of the Rules are, in principle, also applicable to existing vessels in the case of major conversions and, in the case of alterations, to the altered parts of the vessel.

1.3.6 The Rules, surveys performed, reports, Certificates and other documents issued by APC, are in no way intended to replace or alleviate the duties and responsibilities of other parties, such as Administrations, Designers, Building Yard, Manufacturers, Repairers, Suppliers, Contractors or Subcontractors, actual or Prospective Owners or Operators, Charterers, Brokers, Cargo Owners and Underwriters. APC cannot therefore assume the obligations arising from these functions, even when APC is consulted to answer in-quiries concerning matters not covered by its Rules, or other documents.

1.3.7 The activities of such parties which fall outside the scope of the Classification as set out in the Rules, such as design, engineering, manufacturing, operating alternatives, choice of type and power of machinery and equipment, number and qualification of crew or operating personnel, lines of the vessel, trim, hull vibrations, spare parts including their number, location and fastening arrangements, life-saving appliances, and maintenance equipment, remain therefore the responsibility of those parties, even if these matters may be given consideration for Classification according to the type of vessel or additional Class Notation assigned.

1.3.8 The Classification-related services and documents performed and issued by APC do not relieve the parties concerned of their responsibilities or other contractual obligations expressed or implied or of any liability whatsoever, nor do they create any right or claim in relation to APC with regard to such responsibilities, obligations and liabilities. In particular, APC does not declare the acceptance or commissioning of a vessel or any part of it, this being the exclusive responsibility of the Owner.

1.3.9 Unless otherwise specified, the Rules do not deal with structures, pressure vessels, machinery and equipment which are not permanently installed and used solely for operational activities such as dredging, heavy load lifting or workshops, except for their effect on the Classification-related matters, such as the vessel’s general strength.

Note

Refer to 3.2 *as regards the Owner’s responsibility for maintenance and operation of the vessel in relation to the maintenance of Class.*

1.3.10 During periods of construction, modification or repair, the vessel is solely under the responsibility of the Builder or the Repair Yard. As an example, the Builder or Repair Yard is to ensure that the construction, modification or repair activities are compatible with the design strength of the vessel and that no permanent deformations are sustained.

1.4 Scope of Classification

1.4.1 Classification covers the vessel's hull and machinery including electrical installations as well as special equipment and installations as far as agreed in the respective classification contract. Classification aims primarily at ensuring reliability of the hull structure and machinery systems on board resulting in an adequate level of safety of personnel and environmental protection. However, Classification is not intended to ensure the effectiveness of the intended missions.

1.4.2 Structures, machinery and equipment determining the type of vessel are subject to examination within the scope of Classification, in accordance with the Character of Classification and affixed Class Notations.

Other systems and components may be included in the Classification and/or certification procedure upon agreement with APC's contractual partner and the Building Yard.

1.4.3 It is assumed that all parties involved in the planning and design, materials and components production and installation have the professional qualifications required and/or suitable facilities/equipment for fabrication. This will normally be established or confirmed by means of a certified quality assurance management system in accordance with ISO 9000, or equivalent.

1.5 Statutory Rules and Regulations

International and national Rules and Regulations as, for instance, adopted by the respective Flag State will, as a matter of principle, not be affected by the Rules for Classification and Surveys. However, various requirements stipulated by international conventions are taken into account in APC's Rules. (See also 2.4.1).

2. Application

2.1 General

2.1.1 These Rules apply to all inland navigation vessels intended for inland navigation activities.

2.1.2 Classification according to these Rules ap-plies primarily to new buildings constructed under surveillance of APC. Classification may also be applied to existing vessels by a survey for Admission to Class/Classification after construction, if sufficient documentation is available, see D.1.2.

2.2 Interpretation

APC alone is qualified to decide upon the meaning,

interpretation and application of the Rules and other Classification-related documents. No reference to the Rules or other Classification-related documents has any value unless it involves, accompanies or follows the intervention of APC.

1.3.11 In any case the General Terms and Conditions of APC shall be observed.

2.3 Disagreement and appeal

2.3.1 Any technical disagreement with the Surveyor in connection with the performance of his duties should be raised by APC's contractual partner as soon as possible.

2.3.2 APC's contractual partner may appeal in writing to APC HO, who will subsequently consider the matter and announce its decision according to its established procedure.

2.4 Duties of APC's contractual partner

2.4.1 International and national Regulations

The Classification of a vessel does not absolve the Owner, Building Yard or any other party responsible for the vessel or parts thereof from compliance with any requirements issued by Administrations.

When authorised by the Administration concerned, APC will act on its behalf within the limits of such authorisation. In this respect, APC will take into account the relevant requirements, survey the vessel, report and issue or contribute to the issue of the corresponding Certificates.

The above surveys do not fall within the scope of the Classification of vessels, even though their scope may overlap in part and may be carried out concurrently with surveys for assignment or maintenance of Class.

In the case of conflict between the provisions of the applicable international and national Regulations and those of the Rules, normally, the former take precedence. However, APC reserves the right to call for the necessary adaptation to preserve the intention of the Rules.

2.4.2 Surveyor's intervention

Surveyors are to be given free access at all times to vessels which are classed or being classed, Building Yard and manufacturer works, to carry out their interventions within the scope of assignment or maintenance of Class, or within the scope of interventions carried out on behalf of Administrations, when so delegated.

Free access is also to be given to experts or/and auditors accompanying the Surveyors of APC within the scope of the audits as required in pursuance of APC's internal Quality System or as required by external organizations.

Owners and Building Yard are to take the necessary measures for the Surveyor's inspections and testing to be carried out safely. Owners and Building Yard - irrespective of the nature of the service provided by the Surveyors of APC or others acting on its behalf - assume with respect to such Surveyors all the responsibility of an employer for his workforce such as to meet the provisions of applicable legislation. As a rule, the Surveyor is to be constantly accompanied

during surveys by personnel of the Owner or Building Yards.

The Certificate of Class and/or other documents issued by APC remain the property of APC. All Certificates and documents necessary to the Surveyor's interventions are to be made available by the Owner or Building Yard to the Surveyor on request.

During the phases of design and construction of the vessel, due consideration should be given to Rule requirements in respect of all necessary arrangements for access to spaces and structures with a view to carrying out Class surveys. Arrangements of a special nature are to be brought to the attention of APC.

3. Rules, Guidelines and Regulations

3.1 Rules

3.1.1 APC's Rules for the Classification of inland navigation vessels (see Table 1.1) will be applied for structural elements of the hull and for components of the machinery and electrical installations of inland naviga-tion vessels, subject to agreement between the Prospec-tive vessel Owner and the Building Yard for the Clas-sification order to APC.

Table 1.1 Rules for the Classification of inland navigation vessels

Chapter	Title
1	Classification and Surveys
2	Hull Design and Construction
3	Machinery, Systems and Electricity
4	Additional Requirements for Notations

3.1.2 When applicable for inland navigation ves-sels, other APC’s Rules, e.g. Rules for high speed craft, Rules for Materials and Welding, Rules for vessels in fibre reinforced plastics, wood, etc., may be used at APC’s discretion.

3.1.3 Vessels, not in compliance with 3.1.1 and

3.1.2 may be classed, provided that their structural elements or any installations are found to be equiva-lent for the respective Character of Classification including Class Notations regarding design, function and structural safety of the vessel.

3.2 Other construction Rules and Regulations

3.2.1 The appraisal of design and construction particulars by APC will be exclusively based on Rules and Guidelines, agreed upon in the specification of the Classification contract between the Prospective vessel Owner or the Building Yard and APC.

3.2.2 In addition, statutory construction Rules for inland navigation vessels, such as ADN, may be applied upon agreement with the relevant Authority and if defined in the specification of the Classification contract between the Prospective vessel Owner or the Building Yard and APC.

3.2.3 The compliance to statutory Regulations of the respective Authority is left to the responsibility of the Prospective vessel Owner and the Building Yard.

3.2.4 International Conventions, Resolutions, Codes, etc., may be applicable in certain cases and/or for certain aspects, e.g. pollution prevention. Details shall be clarified and laid down in the Classification specification in the particular case.

3.3 Industry Codes, Standards, etc.

Internationally recognized standards and codes published by relevant organisations, national industry organisations or standardisation institutions may be used upon agreement in particular cases as a design and construction basis.

Examples: ISO, IEC, EN, DIN, NF.

B. Assignment of Class

1. General

Class is assigned to a vessel upon a survey, with the associated operations, which is held in order to verify whether it is eligible to be classed on the basis of the APC Rules, see A.3.

This may be achieved through:

– the completion of a new building, during which a survey has been performed

– a survey when the vessel changes Class between recognised Classification Societies, or

– a specific Admission to Class Survey, in cases where a vessel is classed with a non-recognised Classification Society or is not classed at all

2. New building procedure

2.1 Vessel surveyed by APC during construction

2.1.1 When a vessel is surveyed by APC during construction, it is to comply with those requirements of the Rules which are in force and applicable depending on the Class of the vessel, taking into account the provisions of A.2.1.

2.1.2 APC:

– reviews/approves the plans and documentation submitted as required by the Rules, see D.

– proceeds, if required, with the appraisal of the design of materials and equipment used in the construction of the vessel and their inspection at works

– carries out surveys or obtains appropriate evi-dence to satisfy itself that the scantlings and construction meet the Rule requirements in rela-tion to the reviewed/approved drawings

attends tests and trials provided for in the Rules

– assigns the Character of Classification, refer to Section 2, A.3.

2.1.3 APC defines which materials and equipment used for the construction of vessels built under survey are, as a rule, subject to appraisal of their design and to inspection at works, and according to which particulars.

2.1.4 As part of his interventions during the vessel's construction, the Surveyor will:

– conduct an overall examination of the parts of the vessel covered by the Rules

– examine the construction methods and proce-dures when required by the Rules

– check selected items covered by the Rule requirements

– attend tests and trials where applicable and deemed necessary

2.2 Use of materials, machinery, appliances and items

2.2.1 As a general rule, all materials, machinery, boilers, auxiliary installations, equipment, items etc. which are covered by the Class and used or fitted on board vessels surveyed by APC during construction are to be new and, tested by APC.

Second hand materials, machinery, appliances and items may be used subject to the specific agreement of APC and the Owner.

2.2.2 The requirements for the selection of materi-als to be used in the construction of the various parts of a vessel, the Characteristics of products to be used for such parts and the checks required for their acceptance are to be as stated in other Parts of the Rules or as specified on reviewed/approved plans. In particular, the testing of products manufactured according to quality assurance procedures approved by APC or judged equivalent by APC and the approval of such procedures are governed by the requirements of APC.

2.3 Defects or deficiencies and their repairs

2.3.1 APC may, at any time, reject items found to be defective or contrary to Rule requirements or require supplementary inspections and tests and/or modifications, notwithstanding any previous Certificates issued.

– classed with a recognised Classification Society, or

not classed with a recognised Society

2.3.2 All repairs are subject to the preliminary agreement of APC. When the limits of tolerance for defects are specified in the Rules concerned or by the manufacturer, they are to be taken into account for repairs.

2.3.3 It is the duty of the Owner and Building Yard to notify APC of any defects or deficiencies noted dur-ing the construction of the vessel and/or of any item not complying with the applicable requirements or in any case unsatisfactory.

2.3.4 Proposals regarding remedial actions intended to be adopted to eliminate such defects or deficiencies are to be submitted to APC and, if accepted, carried out to the Surveyor's satisfaction.

2.4 Equivalence of Rule testing under certain conditions

Notwithstanding the provisions of 2.1.2, APC may, at its discretion and subject to conditions and checks deemed appropriate, accept certain materials, appliances or machinery which have not been subjected to Rule testing.

3. Vessels under construction

3.1 Vessels built under supervision of a recognized Classification Society

In this case, vessels will be admitted to APC's Class upon satisfactory surveys and verification of documentation. For the extent and scope of the surveys to be carried out and the list of documentation to be submitted by the Owner reference is to be made to D.

Supervision of construction tests and trials to be carried out are based on the completion progress of the vessel and the updated current construction/Class status as provided by the previous Classification Society. Admission to Class may be conditioned by statutory Regulations.

For the documentation to be supplied, see D.1.3.

3.2 Other vessels

Other vessels may be accepted on a case by case basis.

4. Vessels classed after construction

4.1 General

4.1.1 When an Owner requests to APC for a vessel already in service to be admitted to Class, the order will be processed differently depending on whether the vessel is:

4.1.2 Where appropriate within reasonable limits, a proven service record of satisfactory performance during a period of adequate length may be used as a criterion of equivalence. Special consideration will be given to vessels of recent construction.

4.1.3 For installations or equipment covered by additional Class Notations, APC will determine the documentation to be submitted.

4.1.4 In addition, APC may base its judgement upon documentation such as Certificates issued or accepted by the former Classification Society, if any, and statu-tory Certificates issued by the flag Administration or by a recognised organisation on its behalf; moreover, other documents and/or plans may be specifically required to be supplied to APC in individual cases.

4.2 Vessels classed with a recognised Classification Society

4.2.1 In this case, vessels will be admitted to APC's Class upon satisfactory surveys and verification of documentation. For the extent and scope of the surveys to be carried out and the list of documentation to be submitted by the Owner reference is to be made to D.2.

4.2.2 Surveys to be carried out are based on the age of the vessel and the updated current Class status of the previous recognised Classification Society, as provided by the Owner.

4.3 Vessels not classed with a recognised Classification Society

4.3.1 In this case, the Class of the vessel will be assigned upon a preliminary review/approval of the documentation listed in D.2.1.3 and subsequent satisfactory completion of the surveys.

4.3.2 The extent and scope of the Admission to Class Survey is to be not less than those required at the Class Renewal Survey of a vessel of the same age and type; in addition, all other periodical surveys should be performed together with those inspections which are linked to specific type and service Notations and/or additional Class Notations and/or special instal-lations the vessel is provided with.

5. Date of Classification - definitions

5.1 Date of build

For a new building the date of build is the year and month on which the new construction survey process is completed.

If modifications are carried out, the date of build remains assigned to the vessel. Where a complete replacement or addition of a major portion of the vessel (e.g. forward section, after section, main cargo section) is involved, the following applies:

– the date of build associated with each major portion of the vessel is indicated on the Classifi-cation Certificate

– survey requirements are based on the date of build associated with each major portion of the vessel

5.2 Date of Classification for new buildings

In principle, the initial period of Class is assigned from the day on which the new building has been completed and enters in service. Where there is a substantial delay between the completion of the construction survey process and the vessel commencing active service, the date of commissioning may be also specified.

5.3 Date of Classification for existing vessels

In principle, for existing vessels the date of Classification is the date of completion of the Admission to Class Survey.

6. Period and validity of Class

6.1 Period of Class

The hull, the machinery as well as special equipment and installations classed have, in principle, the same period of Class; see also Section 2, A.3.3.

6.2 Prerequisites for validity of Class

6.2.1 The Class assigned by APC is only valid under the provision that the operating conditions are com-plied with as stated in the Class Certificate, the opera-tion manual and/or as additionally agreed between the vessel Owner and APC.

6.2.2 The Classification is based on the understanding that the vessel is loaded and operated in a proper manner by competent and qualified crew or operating personnel according to the environmental, loading, operating and other criteria on which Classification is based.

6.2.3 In particular, it will be assumed that the draught of the vessel in operating conditions will not exceed that corresponding to the freeboard assigned or the maximum approved for the Classification, that the vessel will be properly loaded taking into account both its stability and the stresses imposed on its structures and that cargoes will be properly stowed and suitably secured and that the speed and course of the vessel are adapted to the prevailing wave height and weather conditions.

7. Validity of Class

6.3.1 The Class continues to be valid, provided that the hull, machinery as well as special equipment and installations classed are subject to all surveys stipulated, see Section 3 and that any repairs required as a

consequence of such a survey are carried out to the satisfaction of APC.

If some special equipment classed is not subjected to the prescribed surveys or is no longer intended to be carried on board, the Notation for that equipment only will be suspended or withdrawn.

6.3.2 APC's Head Office or one of its representations are to be immediately informed about any average, damage or deficiency to the hull, machinery or equipment classed, where these may be of relevance to the vessel's Class and safety. A survey will have to be arranged immediately.

If the survey reveals that the vessel's Class has been affected, it will be maintained only on condition that the repairs or modifications demanded by APC are carried out within the period and under the operating conditions specified by the Surveyor. Until full settlement of these demands the Class will be restricted.

6.3.3 Any damage or excessive wastage beyond allowable limits to side shell frames, their end attachments and/or adjacent shell plating, the deck structure and deck plating, the bottom structure and bottom plating, the watertight or oiltight bulkheads and the hatch covers or coamings that affect a vessel's Class, is to be permanently repaired immediately.

For locations where adequate repair facilities are not available, consideration may be given to allow a vessel to proceed directly to a Repair Yard. This may require temporary repairs for the intended voyage.

Damages or excessive wastage at the areas noted above and not immediately affecting the vessel's structural or watertight/weathertight integrity may be temporarily repaired for a period to be defined.

6.3.4 Where defects are found further to an inspec-tion by an Administration, Owners are to:

– immediately report the outcome of this inspec-tion to APC, and

– ask APC to perform a survey in order to verify the deficiencies, when related to the Class of the vessel

6.3.5 Apart from the Class Certificate, any other documentation of significance for Classification, such as:

reports on surveys previously performed

– maintenance schedules to be observed by vessel owner, as agreed with APC

– reviewed/approved drawings and other documentation handed out to the vessel owner and containing particulars or instructions of signifi-cance in respect of the Classification require-ments, e.g. use of special steel grades

is to be kept on board and made available to the Surveyor on request.

6.3.6 Systems for special use may be exempted from Classification. However, any changes in such systems that may affect the safety of operations and hence validity of the vessel's Class, including its clas-sified installations, shall be notified to APC in due course. This applies particularly to cases, where system changes lead to structural conversions or important changes in the machinery and electrical installation.

6.3.7 APC provides a notification system to remind the vessel owner of surveys becoming due, or of any other matters of interest or urgency in connection with the Classification of the vessel. However, it remains the responsibility of the vessel owner to comply with the Class conditions and to observe the dates for the prescribed surveys.

6.4 Repairs, conversions

6.4.1 Where parts or components are damaged or worn to such an extent that they no longer comply with the Class requirements, they are to be repaired or replaced. The damaged parts shall be made accessible for inspection so that the kind and extent of the dam-age can be thoroughly examined.

During repairs or maintenance work, the Owner has to arrange so that any damage, defects or non-compliance with the Rule requirements are reported to the Surveyor during his survey.

6.4.2 Repairs and conversions of the vessel's hull, machinery as well as special equipment and installa-tions classed have to be carried out under the supervi-sion of APC to ensure compliance with the Rules and continued validity of Class. The repair measures are to be agreed with the Surveyor such as to render possible confirmation of the Class, without reservations and conditions of Class, upon completion of the repairs.

Where necessary, documentation is to be submitted to APC and/or made available to the attending Surveyor.

Generally, a confirmation of Class with recommenda-tions/conditions of Class, e.g. in case of temporary repairs, requires to be approved by APC's Head Office.

6.4.3 The areas affected by repairs or conversion shall be treated in the same way as for new buildings. However, experience and technical knowledge gath-ered since the vessel was built shall be taken into account.

Materials and equipment used for conversions, altera-tions or repairs are generally to meet the requirements of the Rules for new vessels built under survey; see D.

6.4.4 If following major conversions a new Char-acter of Classification and/or new Notations are as-signed so that the Class Certificate has to be reissued, commencement of a new period of Class may be agreed upon.

is reinstated.

6.5 Change of ownership

6.5.1 In the case of change of ownership, the vessel retains its current Class with APC provided that:

– APC is informed of the change in due time and able to carry out any survey deemed appropriate, and

– the new Owner expressively requests to keep the current Class, involving acceptance of APC's General Terms and Conditions and Rules. This request covers inter alia the condition of the ves-sel when changing ownership

6.5.2 The vessel's Class is maintained without prejudice to those provisions in the Rules which are to be enforced in cases likely to cause suspension or withdrawal of the Class such as particular damages or repairs to the vessel of which APC has not been advised by the former or, as the case may be, new Owner.

C. Suspension and Withdrawal of Class

1. Discontinuance of Class

1.1 General

1.1.1 The Class may be discontinued either temporarily or permanently. In the former case it is referred to as "suspension" of Class, in the latter case as "withdrawal" of Class. In both these cases, the Class is invalidated in all respects. If for some reason, the Class has expired or has been withdrawn or suspended by APC, this fact will be indicated in the Register.

1.1.2 If the vessel Owner is not interested in maintenance of Class of the vessel or any of its special equipment and installations classed, or if conditions are to be expected under which it will be difficult to maintain Class, APC will have to be informed accordingly. APC will decide whether the Certificate will have to be returned and Class suspended or withdrawn. Where only special equipment and installations are concerned, the corresponding Notation will be with-drawn and the Certificate amended accordingly.

1.1.3 Class may also be suspended if a vessel is withdrawn from active service for a longer period.

2. Suspension of Class

2.1 General

2.1.1 The Class may be suspended either automatically or following the decision of APC. In any event, the vessel will be considered as not retaining its Class from the date of suspension until the date when Class

2.1.2 The Class may be automatically suspended when one or more of the following circumstances occur:

– when a vessel is not operated in compliance with the Rule requirements, such as in cases of services or conditions not covered by the service Notation, or trade outside the navigation restric-tions for which the Class was assigned

– when a vessel proceeds with more draft than that assigned, or has the draft marks placed on the sides in a position higher than that assigned, or, in cases of vessels where draft marks are not as-signed

– when the Owner fails to inform APC in order to submit the vessel to a survey after defects or damages affecting the Class have been detected

– when repairs, alterations or conversions affect-ing the Class are carried out either without re-questing the attendance of APC or not to the satis-faction of the Surveyor

Suspension of Class with respect to the above cases will remain in effect until such time as the cause giv-ing rise to suspension has been removed. Moreover, APC may require any additional surveys deemed neces-sary taking into account the condition of the vessel and the cause of the suspension.

2.1.3 In addition, the Class is automatically sus-pended:

– when the Class Renewal Survey has not been completed by its limit date or within the time granted for the completion of the survey, unless the vessel is under attendance by APC's Survey-ors with a view to completion prior to resuming trading

– when the Intermediate Survey has not been completed by the end of the corresponding sur-vey time window (see Section 3, B.)

Suspension of Class with respect to the above cases will remain in effect until such time as the Class is reinstated once the due items and/or surveys have been dealt with.

2.1.4 In addition to the circumstances for which automatic suspension may apply, the Class of a vessel may also be suspended following the decision of APC:

– when a condition of Class is not dealt with within the time limit specified, unless it is post-poned before the limit date by agreement with APC

– when one or more surveys are not held by their limit dates or the dates stipulated by APC also taking into account any extensions granted in accordance with the provisions of Section 2, A.3.3

– when, due to reported defects, APC considers that a vessel is not entitled to retain its Class even on

Class Notation generally does not affect the Class.

a temporary basis, pending necessary repairs or renewals, etc.

– in other circumstances which APC will consider on their merits, e.g. in the event of non-payment of fees

2.1.5 Suspension of Class decided by APC takes effect from the date when the conditions for suspen-sion of Class are met and will remain in effect until such time as the Class is reinstated once the due items and/or surveys have been dealt with.

3. Withdrawal of Class

3.1 General

3.1.1 APC will withdraw the Class of a vessel in the following cases:

at the request of the Owner

– when the causes that have given rise to a sus-pension currently in effect have not been re-moved within six months after due notification of suspension to the Owner

– when the vessel is reported as a constructive total loss

when the vessel is lost

when the vessel is reported scrapped

3.1.2 Withdrawal of Class takes effect from the date on which the circumstances causing such with-drawal occur.

3.1.3 When the withdrawal of Class of a vessel comes into effect, APC will:

– forward the Owner written notice

delete the vessel from the Register

4. Withdrawal/suspension of additional Class Notations

4.1 General

4.1.1 If the survey requirements related to mainte-nance of additional Class Notations are not complied with, the suspension or withdrawal may be limited to the Notations concerned.

4.1.2 The same procedure may apply to type and service Notations of vessels which are assigned with more than one type and service Notation.

4.1.3 The suspension or withdrawal of a type and service Notation (where a vessel is assigned with more than one type and service Notation) or of an additional

remains laid up. The minimum content of the

5. Reassignment/Readmission to Class

5.1 General

5.1.1 At the request of the Owner, a vessel which was previously classed with APC, subsequently withdrawn from Class and has not been classed since that time, may have the Class reassigned subject to an Admission to Class Survey. If applicable and appropriate, account may be taken of any periodical surveys held in the former period of Class with APC.

5.1.2 Where, after suspension or withdrawal of Class, the repairs required by APC have been carried out and the vessel has been subjected to a survey for Readmission to Class, the original Class may be reassigned starting with a new period of Class. Such surveys are generally to be carried out in accordance with the requirements for a Class Renewal Survey, see Section 3.

5.1.3 Depending on the duration of the interruption period, parts of the machinery installation may have to be dismantled and river trials or function tests have to be carried out in excess of the requirements mentioned above. For parts and installations replaced or added in the meantime, the scope of examinations and tests to be carried out for Admission to Class shall be as for newbuildings.

6. Lay-up and recommissioning of laidup vessels

6.1 The period of Class of hull and machinery will not be interrupted throughout the lay-up period. This means that periodical and non-periodical surveys will have to be carried out as before; surveys due, for which dry-docking is required, may be postponed until recommissioning.

6.2 Upon expiry of the Class, a survey substituting the Class Renewal Survey will have to be performed. An entry on the Class renewal will be made in the Class Certificate, with the Notation **Laid-up** and indicated in the Register.

6.3 A vessel put out of commission may be subject to specific requirements for maintenance of Class, as specified below, provided that the Owner notifies APC of the fact.

6.4 If the Owner does not notify APC of the lay-up of the vessel or does not implement the lay-up mainte-nance program, the vessel's Class will be suspended and/or withdrawn when the due surveys are not car-ried out by their limit dates in accordance with the applicable requirements given in Section 3.

6.5 The lay-up maintenance program provides for a "laying- up survey" to be performed at the beginning of lay-up and subsequent “lay-up condition surveys” which are required to be carried out as long as the vessel

other Rules and Regulations to be applied.

lay-up maintenance program as well as the scope of these surveys are to be agreed with APC. The other periodical surveys which become overdue during the lay-up period may be postponed until the recommis-sioning of the vessel.

6.6 Where the vessel has an approved lay-up maintenance program and its period of Class expires, the period of Class is extended until it is recommis-sioned, subject to the satisfactory completion of the lay-up condition surveys as described in 6.5.

6.7 The periodical surveys carried out during the lay-up period may be credited, either wholly or in part, at the discretion of APC, having particular regard to their extent and dates. These surveys will be taken into account for the determination of the extent of surveys required for the recommissioning of the vessel and/or the expiry dates of the next periodical surveys of the same type.

6.8 When a vessel is recommissioned, the Owner is to notify APC and make provisions for the vessel to be submitted to the following surveys:

– a survey prior to recommissioning, the scope of which depends on the duration of the lay-up pe-riod. Depending on the duration of the lay-up period, a river trial and/or recommissioning tri-als of specific installations and/or components will have to be carried out.

– all periodical surveys which have been post-poned in accordance with 6.2, taking into ac-count the provisions of 6.4.

6.9 Where the previous period of Class expired before the recommissioning and was extended as stated in 6.3, in addition to the provisions of 6.5 a complete Class Renewal Survey is to be carried out prior to recommissioning. Items which have been surveyed in compliance with the Class Renewal Sur-vey requirements during the 12 months preceding the recommissioning may be credited. A new period of Class is assigned from the completion of the Class Renewal Survey.

D. Classification Procedures

1. Classification of new building

1.1 Order for Classification

1.1.1 The written order for Classification is to be submitted to APC in triplicate, if needed, by the Build-ing Yard or by the Prospective vessel Owner, using the form provided by APC. It should be clearly agreed between the parties concerned, e.g. in the building contract, which party will be responsible for compli-ance with APC's Rules and Guidelines and

Class Notations, granted to the vessel modified, plans and drawings are generally to be re-examined.

1.1.2 Where orders for the production of components are placed with subcontractors, APC will have to be advised accordingly indicating the scope of the subcontract. The Building Yard and Prospective Owner are responsible for observance of the Rules, Guidelines and Regulations by subcontractors.

1.1.3 When particulars already approved by APC for previous inland navigation vessels built under supervi-sion of APC are incorporated in the design of the new building, this should be specifically stated in the order for Classification. Amendments to the construction Rules having been introduced meanwhile shall be taken into account.

1.2 Examination of design and construction particulars

1.2.1 Particulars/documents for review/approval such as construction plans, calculations, details on mate-rials, type designation of standard equipment, etc. are to be submitted to APC at least in triplicate, in English or other language agreed upon with APC in due time prior to commencement of construction/manufacturing.

The particulars submitted shall contain all details required to verify compliance with the construction Rules. APC reserves the right to request additional information and particulars to be submitted, according to the specific nature of the vessel to be classed.

Design calculations are to be provided, when called for, as supporting documents to the submitted plans.

1.2.2 After examination by APC, the documents subject to review/approval will be returned in one copy with a mark/stamp of review/approval. One copy of each document, with remarks related to the compliance with the Rule requirements should the need arise, will be forwarded for verification to APC's inspection office(s) in charge of construction supervision.

1.2.3 Any deviations from the review/approved documents e.g. due to requirements of the vessel Owner or alterations suggested by the Building Yard, require to be approved by APC prior to being realized.

1.3 Documentation

1.3.1 The design data, calculations and plans to be submitted for review/approval are listed in applicable requirements of Chapter 2, Chapter3 and Chapter 4.

1.3.2 The documentation submitted to APC is exam-ined in relation to the Class requested in the order for Classification.

1.3.3 Should the Building Yard or Prospective Owner subsequently wish to have the Class, in particular the type and service Notations or additional

been constructed in compliance with the reviewed/approved drawings/documents

1.3.4 As a rule, modifications of the reviewed/ approved plans regarding items covered by Classification are to be submitted for review/approval.

1.3.5 The plans and design data to be submitted to APC are to incorporate all information necessary for the assessment of the design of the vessel for the purpose of assignment of Class. It is the responsibility of the Building Yard or Prospective Owner to ascertain that the design data are correct, complete and compatible with the use of the vessel.

1.3.6 Design data and calculations are to be adequately referenced. It is the duty of the Building Yard or Prospective Owner to ascertain that the references used are correct, complete and applicable to the design of the vessel.

1.3.7 In the case of conflicting information, submitted documentation will be considered in the following order of precedence: design data, plans, design calculations.

1.3.8 It is the responsibility of the Building Yard or Prospective Owner to ascertain that drawings used for the procurement, construction and other works are in accordance with the reviewed/approved plans.

1.4 Supervision of construction and trials

1.4.1 APC will assess the production facilities and procedures of the Building Yard, subcontractors and other manufacturers, to determine whether they meet the requirements of APC's Rules and any additional requirements of the Prospective vessel Owner as agreed in the building specification. This assessment may be connected with a quality assurance certification.

1.4.2 Materials, components, appliances and installations subject to inspection are to comply with the relevant Rule requirements and are to be presented for inspection by APC's Surveyors, unless otherwise provided as a result of special arrangements agreed upon with APC.

It is the duty of the Building Yard, subcontractors and other manufacturers to inform APC's inspection office in due time about particular surveys to be carried out.

1.4.3 In order to enable the Surveyor to fulfil his duties, he is to be given free access to the workshops and to the vessel. For performance of the tests required, the Building Yard subcontractors and other manufacturers are to give the Surveyor any assistance necessary by providing the staff and the equipment needed for such tests.

1.4.4 During the phase of construction of the vessel or installation, APC will satisfy itself by surveys and inspections that:

– parts for hull, machinery and electrical installati-ons or special equipment subject to review/ap-proval have

– all tests and trials stipulated by the Rules for Classification and construction are performed satisfactorily

– workmanship is in compliance with current engineering standards and/or APC's Rule requirements

– welded parts are produced by qualified welders having undergone the tests required by the ap-plicable Rules

– for hull sections or components requiring APC's approval Certificates have been presented. The Building Yard, subcontractors or other manufac-turers will have to ensure that any parts and ma-terials requiring approval will only be delivered and installed, if the appropriate Certificates have been issued

– type-tested or type-approved appliances and equipment are used, in accordance with the Rule requirements, where individual Certificates are not required

1.5 Tests

1.5.1 As far as practicable, the machinery including electrical installations as well as special equipment and installations classed will be subjected to operational trials at the manufacturer's premises to the scope specified in the construction Rules.

Where the machinery, electrical installations or special equipment and installations are of novel design or have not yet sufficiently proved their efficiency and reliability under actual service conditions on board, APC may require performance of trials under specified severe conditions.

1.5.2 Use of measuring equipment and of service suppliers

Firms providing services on behalf of the Owner or Building Yard, such as measurements, tests and servic-ing of safety systems and equipment, the results of which may form the basis for the Surveyor's decisions, are subject to the acceptance of APC, as deemed neces-sary.

The equipment used during tests and inspections in workshops, Building Yard and on board vessels, the results of which may form the basis for the Surveyor's decisions, is to be customary for the checks to be performed. Such equipment is to be individually identified and calibrated to a recognised national or international standard.

1.5.3 Simple measuring equipment

The Surveyor may accept simple measuring equipment (e.g. rulers, tape measures, weld gauges, micrometers) without individual identification or confirmation of calibration, provided it is of standard commercial design, properly maintained and periodically compared with other similar equipment or test pieces.

1.5.4 Measuring equipment on board

The Surveyor may accept measuring equipment fitted on board a vessel (e.g. pressure, temperature or rpm gauges and meters) and used in examination of machinery and/or equipment installed on board the vessel based either on calibration records or comparison of readings with multiple instruments.

1.5.5 Other equipment

The Surveyor may request evidence that other equipment (e.g. tensile test machines, ultrasonic thickness measurement equipment, etc) is calibrated to a recognised national or international standard.

1.6 Trials on board

1.6.1 Upon completion of the vessel, all hull, machinery including electrical installations as well as special equipment and installations classed will be subjected to operational trials in the presence of the Surveyor prior to and during the navigation trials. This will include, e.g.:

– tightness, operational and load tests of tanks, anchoring equipment, hatches and hatch covers, shell doors, ramps, etc.

– operational and/or load tests of the machinery, installations and equipment of importance for the operational safety of the vessel

During a final survey, checks will be made to ensure that any deficiencies found, for instance during the navigation trials, have been eliminated.

1.6.2 Reports, Certificates, documentation

Testing of materials, components, machinery, etc. at subcontractor's works will be certified by the Surveyor and/or the local APC's representation.

1.6.3 Upon completion of the construction and the trials on board, the Surveyor will prepare survey reports and a Class Certificate.

1.6.4 The Classification data of each vessel will be included in APC's data file. An extract of these vessel data will be indicated in the Register.

2. Classification after construction of existing vessels

2.1 Admission to Class

2.1.1 Vessels not originally built under supervision of APC may be classed subsequently following the procedures described in the following.

The vessel’s Owner should contact APC for the necessary arrangements. APC is to be informed about the previous Class status and period, as well as about any conditions of Class/recommendations imposed by the previous Classification Society. The written order for Admission to Class of existing vessels or special

equipment including the required documents shall be formally addressed to APC's Head Office in triplicate, if needed, using the form provided by APC.

2.1.2 The following documents updated to present status shall be submitted for examination where applicable. Information shall be provided about any additional Regulations to be observed.

2.1.3 Particulars for hull and machinery

– particulars of the type and main dimensions of the vessel, building year, building yard, major conversions, if any, freeboard, stability documentation and details of the anchor equipment

– particulars of the type, output and main data, building year and manufacturer of the main engine(s) and of the auxiliary machinery essential for op-erational safety, the electrical installations, the automatic/remote-control system, the safety arrangements, the steering gear and the windlasses

– general arrangement, capacity plan, hydrostatic and cross curves, loading manual, where required, midship section, longitudinal and transverse sec-tions, transverse bulkheads, decks, shell expan-sion, engine and boiler foundations, stem and stern frame, rudder and rudder stock, hatch covers

– machinery arrangement and layout, thrust, intermediate and screw shafts, propellers, main en-gines, propulsion gears and clutch systems, start-ing-air receivers, auxiliary boilers and related systems, cooling water and lubricating oil sys-tems, bilge and ballast systems, fuel oil and start-ing-air systems, air and sounding pipe systems, electrical arrangements and wiring diagrams

– steering gear arrangement and piping system and steering gear manufacturer, make and model information

– pumping arrangements at the forward and after ends, drainage of cofferdams and pump rooms and general arrangements of cargo piping in tanks and on decks, for tankers

– torsional vibration calculations of the main shafting system including its branches for ves-sels less than two years old

– drawings for flexible couplings and/or torque limiting shafting devices in the propulsion line or manufacturer, make, model and rating infor-mation for vessels with the additional Class No-tation **Ice**

– instrument and alarm list, fire alarm system, list of automatic safety functions, e.g. slowdowns, etc.

– plans required for vessels to which an additional Class Notation is assigned

– alternative technical data may be accepted by APC in lieu of specific items of the listed docu-mentation not available at the time of the trans-fer of Class

2.2 Examination of design and surveys

2.2.1 The requirements according to 1.2 are applicable in principle. The report on the survey according to 2.3 will be evaluated together with the examination of the particulars and/or drawings to be reviewed/approved.

2.2.2 Where sufficiently detailed documentation required for review/approval is not available, the necessary information may have to be gathered by an additional survey, possibly including measurements, and/or by additional investigations, computations, etc.

2.2.3 If the vessels as well as the special equipment and installations classed have the valid Class of another recognized Classification Society, and if sufficient proof has been furnished regarding the present Class status, APC may dispense with parts of the examination of drawings and computations and may reduce the scope of the survey. However, at least a survey to the scope of an Intermediate Survey according to Section 3 is to be carried out.

2.3 Reports, Certificates, documentation

2.3.1 Upon completion of the examinations and surveys mentioned above, a Class Certificate will be issued and a Class period defined.

2.3.2 Regarding Surveyor's reports and Certificates, the provisions of 1.4 apply also to the Classification of existing vessels.

2.3.3 Once a vessel and the relevant equipment have been classed with APC, the Rules in force for surveys as well as procedures applicable to vessels constructed under supervision of APC will apply.

3. Documentation to be carried on board

3.1 General

To allow quick action in case of surveys, special operation and especially in case of damage, the following documentation shall be kept on board and shall be made available to the Surveyor on request:

– Class Certificate - all survey statements and reports

– stability handbook and loading manual, if re-quired

– description of corrosion protection system, if required

– "as built" drawings and other documentation containing particulars or instructions of signifi-cance as far as APC is concerned, e.g. use of spe-cial steel etc.

– list of important testing/monitoring procedures to be followed in connection with validity of Class

Section 2

Class Designation

A. General

1. Definitions

1.1 The Class of an inland navigation vessel complying with the APC Rules is expressed by the "Character of Classification", assigned for hull and machinery including electrical installations.

1.2 Details about hull, machinery including electrical installations as well as special equipment and installations included in the Classification procedure are indicated by type and service Notations and additional Class Notations affixed to the Character of Classification, see Table 2.2 and Table 2.3.

1.3 The Character of Classification and the Notations give the scope according to which the Class of the vessel has been based and refer to the specific Rule requirements which are to be complied with for their assignment. In particular, the Character of Classification and Notations are assigned according to the type, service and range of navigation of the vessel and other criteria which have been provided by the owner or building yard when requesting for Classifica-tion.

1.4 APC may change the Character of Classification or the Notations at any time, when the information available shows that the requested or already assigned Notations are not suitable for the intended type, service, navigation and any other criteria taken into account for Classification.

1.5 The Character of Classification and Notations assigned to a vessel are indicated on the Certificate of Classification, as well as in the Register of inland navigation vessels published by APC.

It will be the decision of the owner or building yard to have the Notations, together with the whole Class designation, included in the published Register of APC or not.

1.6 The Character of Classification and Notations applicable to existing vessels conform to the Rules of APC in force at the date of assignment of Class, as indicated in 3.1. However, the Character of Classification and Notations of existing vessels may be updated according to the current Rules, as far as applicable.

2. Class designation

Table 2.1 shows an example of a Class designation for hull and machinery of an inland navigation vessel.

Table 2.1 Example of Class designation

Example of Class designation
100 A5 IN(0,6) Z **Double hull Tanker / DP = 57,5kPa / TP = 65kPa ADN Type C** **MC**

3. Characters of Classification

3.1 Characters of construction for hull and machinery installations

3.1.1 The character heading the Class designa-tion indicates that hull, machinery as well as special equipment and installations included in the Classification have been constructed:

– under the supervision of and in accordance with the Rules of APC at the Building Yard and/or at subcontractors supplying construction components/hull sections, as applicable

– with certification of APC of components and materials requiring inspection subject to APC construction Rules.

3.1.2 The character will be assigned if the vessel has been designed and constructed in accordance with the Rules and under supervision of another recognized Classification Society and is subsequently - or at a later date - classed with APC, see Table 2.2.

3.1.3 The character will be assigned to the relevant part of the vessel, where the procedure for the assignment of Classification is other than those detailed in 3.1.1 and 3.1.2, but however deemed acceptable, see Table 2.2.

3.1.4 In the event of Admission to Class (change of Class) from a Society or institution which is not rec-

ognized, prior examination of drawings and existing Certificates of the hull structure, the machinery and electrical installations is conditional.

3.1.5 Under the same conditions, one of the characters defined in 3.1.1 to 3.1.3 is assigned, followed by the character **MC** to the classed machinery installation.

Table 2.2 Characters of construction for hull and machinery

Component	Character	Rule requirements	Example
Hull		Vessels built under the supervision of APC and with certification of components and materials in accordance with the Rules.	**100 A5**
		Vessels built under the supervision of another recognized Classification Society and which have been assigned a class equivalent to APC's Rules of Classification	**100 A5**
		Vessels built under the supervision of APC in accordance with the Rules, but , e.g. without certification of components and materials which, however, deemed to be acceptable. It is the responsibility of the Building Yard to ascertain that the materials and equipment used in the vessel's construction satisfactorily meet the Rules requirements	**100 A5**
		In the event of Admission to Class or Classification after construction from a Society or institution which is not recognized.	**100 A5**
Machinery	, etc.	Same characters followed by **MC**	**MC**

Table 2.3 Characters for compliance with Rules

Character	Description
100 A5	For vessels that fully meet the construction and scantling requirements.
Z	Where the vessel's anchors and chain cables meet the applicable requirements of the Rules.
(Z)	The character **Z** is replaced by **(Z)**, if the vessel's equipment does not meet the Rule requirements in full, but, however, it is deemed to be acceptable for the intended service.
(-)	Where APC considers that it is not called upon to form an opinion on the equipment with regard to particular conditions.

another recognized Classification Society or other Rules

3.1.6 Generally, one of the construction characters above is assigned, under the same conditions and fol-lowed by the appropriate character, to any special equip-ment for which a Classification Certificate is issued.

3.2 Characters of Class and compliance with Rules

If the vessel's hull fully complies with APC Rules - or

considered to be equivalent, the Character of Classification will be:

100 A5

3.3 Class period

The duration of the class period is 5 years.

3.4 Range of navigation character

The character **IN** indicates a vessel on inland navigation waters. Inland navigation waters comprise:

– all inland waterways

– all semi-maritime stretches of water up to wave height of 2 m

– other waters showing comparable conditions

Note

The owner's attention is drawn to the navigation conditions, which on some lakes are very similar to sea navigation conditions. It is up to the owner to state in each particular case if he wishes that the vessel is assigned an inland navigation Notation or one of the navigation Notations listed in the Rules for seagoing vessels.

The character **IN** is completed, between brackets, with the significant wave height for which the vessel has been calculated. See also B.10.

3.5 Equipment Character

3.5.1 The character **Z**, placed after the range of navigation, indicates that the vessel's equipment on anchors and chain cables meet the applicable requirements of the Rules.

3.5.2 Where the vessel's equipment does not meet the Rule requirements, but is deemed by APC to be acceptable for the intended service, the character **Z** is replaced by **(Z)**. Reference can be made in the Classification Certificate to the compliance of the equipment with other Rules such as the Rhine River Rules.

3.5.3 Where APC considers that it is not called upon to form an opinion on the anchor equipment, with regard to particular conditions, the character **Z** is re-placed by **(-)**.

B. Classification Notations

1. General

1.1 There are different kinds of Notations, such as type and service Notations, describing particular features, capabilities, service restrictions or special equipment and installations included in the Classification, as defined in the following.

1.2 The Notations to be affixed to the Character of Classification related to the type and service of the vessel are optional and may be elected by the owner or

2. Notations

2.1 General

2.1.1 Generally, the Notations will be assigned according to the indications or suggestions of the prospective vessel owner or building yard.

2.1.2 A Notation indicating the type and service of the vessel will be added to the Class designation, such as:

Cargo vessel, **Tanker**, etc.

2.1.3 The Notations, which have been considered for Classification, define the type and service of the vessel according to the request for Classification signed by the prospective owner or building yard. The assignment of any Notation to a new vessel is subject to compliance with the general Rule requirements laid down in the Chapters 2, 3 and 4 of APC Rules for Inland Navigation Vessels.

2.1.4 The Notations applicable to existing vessels conform to the Rules of APC in force at the date of assignment of Class. However, the Notations of existing vessels may be updated according to the cur-rent Rules, as far as applicable, at the request of the owner.

2.1.5 A Notation may be completed by one or more additional Class Notations, giving further precision regarding the type or service of the vessel, for some of which specific Rule requirements are applied.

2.1.6 The various type and service Notations which may be assigned to a vessel are listed in alphabeti-cal order in Table 2.4. The additional Class Notations to the type and service Notations are listed in Table 2.5.

building yard. The chosen scope of Notations has to be defined in the Classification specification as well as in the building specification.

2.1.7 Where the intended duties of the vessel in-clude support functions, they may be described by Notations which correspond to seagoing vessels or to special type regarding the hull configuration and/or particular kind of propulsion. Such Notations may be assigned instead of or in addition to the Notations referred to, when the applicable Rule requirements are met, e.g.:

HSC for high speed craft

PATROL BOAT

SUPPLY VESSEL

2.1.8 APC reserves the right to grant other type and service Notations or additional Class Notations.

Table 2.4 List of type and service Notations

Type and service Notation	Reference for definition	Applicable Rules
Barge	3.1.3	I-2-4, Section 1, A. or B. as applicable
Cargo vessel	3.1.1	I-2-4, Section 1, A. or B. as applicable
Container vessel	3.1.2	I-2-4, Section 2, B.
Dredger [1]	6.1.1	I-2-4, Section 2, G.
Excursion boat	5.1.3	I-2-4, Section 2, D.
Hopper barge	6.1.3	I-2-4, Section 2, G.
Hopper dredger [1]	6.1.2	I-2-4, Section 2, G.
Hotel ship	5.1.2	I-2-4, Section 2, D.
Launch	7.1.3	I-2-4, Section 2, H.
Passenger vessel	5.1.1	I-2-4, Section 2, D.
Pontoon [2]	7.1.4	I-2-4, Section 2, F.
Pushed barge	3.1.4	I-2-4, Section 1, A. or B. as applicable
Pusher	7.1.2	I-2-4, Section 2, E.
Restaurant ship	5.1.4	I-2-4, Section 2, D.
RoRo vessel	3.1.5	I-2-4, Section 2, C.
Special service [3]	8.1.1	APC Rules
Split hopper barge	6.1.4	APC Rules
Tanker	4.1.1	I-2-4, Section 2, A.
Tug	7.1.1	I-2-4, Section 2, E.

[1] This Notation may be completed by the type of the dredger, e.g. **Hopper suction dredger**.

[2] This Notation may be completed by the type of installations on deck of the pontoon, e.g. **Pontoon/Crane**.

[3] This Notation may be completed by the type of vessel, e.g. **Floating dock.** This type of vessel is considered on a case by case basis by APC, according to its type and service.

2.1.9 ADN

Type and service Notations may be completed by the additional Class Notation **ADN**, when the vessel's structure, its stability and equipment are examined by APC or the Authorities and found in compliance to the corresponding Regulations.

3. Notations for vessels carrying dry cargoes

3.1 Type and service Notations

3.1.1 Cargo vessel

The type and service Notation **Cargo vessel** applies to vessels intended for the carriage of solid cargo and/or bulk complying with the APC Rules Additional Re- quirements for Notations (I-2-4), Section 1, A. or B., as applicable.

3.1.2 Container vessel

The type and service Notation **Container vessel** ap-plies to vessels specially intended for the carriage of containers complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 2, B.

3.1.3 Barge

The type and service Notation **Barge** applies to ves-sels without propulsion intended for the carriage of solid cargo and/or bulk complying with the APC Rules Additional Requirements for Notations (I-2-4), Sec- tion 1, A. or B., as applicable.

3.1.4 Pushed barge

The type and service Notation **Pushed barge** applies to vessels without propulsion as part of a pushed con-voy intended for the carriage of solid cargo and/or bulk complying with the APC Rules Additional Re- quirements for Notations (I-2-4), Section 1, A. or B., as applicable.

3.1.5 RoRo vessel

The type and service Notation **RoRo vessel** applies to vessels specially intended to carry vehicles, trains and loads on wheeled beds, complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 2, C.

3.2 Additional Class Notations

3.2.1 Equipped for transport of containers

The type and service Notation **Cargo vessel** may be completed with the additional Class Notation **Equipped for transport of containers**, where the vessel complies with the Rule requirements stated under the APC Rules Additional Requirements for Nota- tions (I-2-4), Section 4, C.

Table 2.5 List of additional Class Notations

Additional Class Notation	Reference for definition	Applicable Rules
Notations related to type of construction [1]		
Double hull	9.2.2	I-2-2, Section 5, B. und C.
Single hull	9.2.2	I 2 2, Section 5, B. und C
With double bottom	9.2.2	I-2-2, Section 5, B.
With double sides	9.2.2	I-2-2, Section 5, C.
Notations related to hull materials [1]		
HS	9.2.1	
AL	9.2.1	
C	9.2.1	
W	9.2.1	
Other Notations [1]		
ADN [2]	2.1.9	
Ice	9.3.1	I-2-4, Section 4, A.2
Ind	9.2.3	
No propulsion	9.2.4	
Intact stability	9.4.1	I-2-4, Section 4, F.
Damage stability	9.4.2	I-2-4, Section 4, F.
Max. density	9.2.5	
Max. t°	9.2.5	
Additional to cargo vessels		
1R	3.2.4	
2R	3.2.5	
Grabloading	3.2.8	I-2-4, Section 4, A.3
Heavy cargo[AREA1, x_1 kN/m^2 - AREA2, x_2 kN/m^2]	3.2.6	I 2 4, Section 4, B.
Nonhomload	3.2.7	
Equipped for transport of containers	3.2.1	I-2-4, Section 4, C.
Equipped for transport of wheeled vehicles	3.2.2	I-2-4, Section 4, D.
DG	3.2.3	I 2 4, Section 3, D.
Additional to passenger vessels		
Ferry	5.2.1	I-2-4, Section 4, E.
Fire	5.2.2	I-2-4, Section 4, G.
Additional to tankers		
TP = x kPa	4.2.1	
DP = x kPa	4.2.1	
Type G	4.2.2	I-2-4, Section 3, C.
Type C	4.2.3	I-2-4, Section 3, B.
Type N closed	4.2.4	I-2-4, Section 3, B.
Type N open with flame arresters	4.2.5	I-2-4, Section 3, B.
Type N open	4.2.6	I 2 4, Section 3, B.
Type N open – Bunkerboat	4.2.7	I-2-4, Section 3, B.
Type N open – Bilgesboat	4.2.8	I-2-4, Section 3, B.
Flash point > 60°C	4.2.9	
Additional to tug/pusher		
DGL	7.2.1	I-2-4, Section 3, A.4.
DGD	7.2.2	I-2-4, Section 3, A.5.
Notation related to class		
Laid-up	Section 1, C.6.1.2	

1 Additional to all vessels

2 Applicable to convoys / vessels carrying dangerous goods

3.2.2 Equipped for transport of wheeled vehicles The requirements for the assignment of this Notation

The type and service Notation **Cargo vessel** may also be completed with the additional Class Notation

Equipped for transport of wheeled vehicles, where the vessel complies with the Rule requirements stated under the APC Rules Additional Requirements for Nota- tions (I-2-4), Section 4, D.

3.2.3 DG

The type and service Notation **Cargo vessel** will be completed by the additional Class Notation **DG** when the cargo vessel is designed to carry dry dangerous goods in compliance with the APC Rules Additional Requirements for Notations (I-2-4), Section 3, D.

3.2.4 1R

The type and service Notation **Cargo vessel** will be completed by the additional Class Notation **1R**, when the cargo vessel's structure is designed for loading and unloading in one run.

3.2.5 2R

The type and service Notation **Cargo vessel** will be completed by the additional Class Notation **2R**, when the vessel's structure is designed for loading and unloading in two runs.

3.2.6 Heavy cargo

The type and service Notation **Cargo vessel** will be completed by the additional Class Notation **Heavy cargo [AREA1, x_1 kN/m^2 - AREA2, x_2 kN/m^2]**, when the double bottom and/or hatch covers and/or other cargo areas designed to support heavy cargoes fulfil the appropriate Rule requirements. The values x_1 indicate the maximum allowable local pressures on the various zones AREAi where the cargo is intended to be stowed. The requirements or the assignment of this additional Class Notation are given in the APC Rules Additional Requirements for Notations (I-2-4), Section 4, B.

3.2.7 Nonhomload

The type and service Notation **Cargo vessel** will be completed by the additional Class Notation **Nonhomload**, when the vessel has been designed in such a way that the cargo spaces may be loaded non-homogeneously, including cases where some holds may be empty, at a draught up to the scantling draught and fulfil the appropriate Rule requirements for general strength, and when the corresponding loading conditions are listed in the reviewed loading manual. This additional Class Notation can be completed with the indication of the different maximum loads allowed in each hold and which holds may be empty, if appropriate.

3.2.8 Grabloading

The Notation **Grabloading** may be assigned to vessels with hold tank tops specially reinforced for loading/unloading cargoes by means of grabs or buckets.

are given in the APC Rules Additional Requirements for Notations (I-2-4), Section 4, A.3

However, this does not preclude vessels not assigned with this Notation from being loaded/unloaded with grabs.

This Notation may only be assigned to vessels with the type and service Notation **Cargo vessel**.

4. Notations for vessels carrying liquids or gazeous cargo in bulk

4.1 Type and service Notations

4.1.1 Tanker

The type and service Notation **Tanker** applies to vessels specially intended to carry liquid or gazeous cargo in bulk, in compliance with requirements stated under the APC Rules Additional Requirements for Nota- tions (I-2-4), Section 2, A.

The list of cargoes the tanker is allowed to carry will be issued by APC, in the case of transport of dangerous goods (see APC Rules Additional Requirements for No- tations (I-2-4), Section 3, A.).

4.2 Additional Class Notations

4.2.1 TP and DP

In addition to the type and service Notation **Tanker**, the test pressure **TP** and the design pressure **DP** of the cargo tanks, expressed in kPa, are added as additional Class Notations.

4.2.2 Type G

Type G, applies to a tanker built and equipped in compliance either with the applicable Additional Requirements for Notations (I-2-4), Section 3, C. of APC or with the ADN Regulations for this type of vessel.

4.2.3 Type C

Type C, applies to a tanker built and equipped in compliance either with the applicable Additional Re- quirements for Notations (I-2 -4), Section 3, B. of APC or with the ADN Regulations for this type of vessel.

4.2.4 Type N closed

Type N closed, applies to a tanker built and equipped in compliance either with the applicable Additional Requirements for Notations (I-2-4), Section 3, B. of APC or with the ADN Regulations for this type of vessel.

4.2.5 Type N open with flame arresters

Type N open with flame arresters, applies to a tanker built and equipped in compliance either with the applicable Additional Requirements for Notations (I-2-4), Section 3, B. of APC or with the ADN Regula-tions for this type of vessel.

4.2.6 Type N open

Type N open, applies to a tanker built and equipped in compliance either with the applicable Additional Requirements for Notations (I-2-4), Section 3, B. of APC or with the ADN Regulations for this type of vessel.

4.2.7 Type N open - Bunkerboat

Type N open- Bunkerboat , applies to a tanker built and equipped in compliance either with the applicable Additional Requirements for Notations (I-2-4), Sec-tion 3, B. of APC or with the ADN Regulations for this type of vessel.

4.2.8 Type N open - Bilgesboat

Type N open- Bilgesboat, applies to a tanker built and equipped in compliance either with the applicable Additional Requirements for Notations (I-2-4), Sec-tion 3, B. of APC or with the ADN Regulations for this type of vessel.

4.2.9 Flash point > 60 °C

The type and service Notation may be completed by the additional Class Notation **Flash point > 60 °C**, where the tanker is intended to carry only such type of products, under certain conditions.

5. Notations for vessels carrying passengers

5.1 Type and service Notation

5.1.1 Passenger vessel

The type and service Notation **Passenger vessel**, ap-plies to vessels specially intended to carry passengers complying with the APC Additional Requirements for Notations (I-2-4), Section 2, D.

5.1.2 Hotel ship

Type and service notation for ships complying with APC Rules Additional Requirements for Notations (I-2- 4), Section 2, D. for passenger vessels, excluding the requirements for vessel arrangement, fire protection, fire detection and extinguishing, electrical installa-tions, buoyancy and stability (para. 3. to 6.).

The requirements (para. 3. to 6.) are outside the scope of Classification however evidence is to be provided that for these items, alternative arrangements in accor-dance with flag state requirements are in place.

This type of vessel sails in national service only.

5.1.3 Excursion boat

Type and service notation for ships complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 2, D. for passenger vessels, excluding the requirements for vessel arrangement, fire protec-tion, fire detection and extinguishing, electrical instal-lations, buoyancy and stability (para. 3 to 6).

The requirements (para. 3. to 6.) are outside the scope of Classification however evidence is to be provided that for these items, alternative arrangements in accordance with flag state requirements are in place.

This type of vessel sails in national service only.

5.1.4 Restaurant ship

Type and service notation for ships complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 2, D. for passenger vessels, excluding the requirements for vessel arrangement, fire protec-tion, fire detection and extinguishing, electrical instal-lations, buoyancy and stability (Para 3. to 6).

The requirements (para. 3. to 6.) are outside the scope of Classification however evidence is to be provided that for these items, alternative arrangements in accordance with flag state requirements are in place.

This type of vessel sails in national service only.

5.2 Additional Class Notations

5.2.1 Ferry

The type and service Notation **Passenger vessel**, may be completed by the additional Class Notation **Ferry**, for vessels specially equipped to load wheeled vehicles, complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 4, E.

5.2.2 Fire

The additional Class Notation **Fire** is added to the type and service Notation **Passenger vessel** when the vessel's installations comply with the APC Rules Additi- onal Requirements for Notations (I-2-4), Section 4, G.

6. Notations for vessels for dredging activities

6.1 Type and service Notations

6.1.1 Dredger

The type and service Notation **Dredger**, applies to vessels specially equipped only for dredging activities (excluding carrying dredged material), complying with the applicable Additional Requirements for Notations (I-2-4), Section 2, G. of APC.

6.1.2 Hopper dredger

The type and service Notation **Hopper dredger**, applies to vessels specially equipped for dredging activities and carrying spoils or dredged material, complying with the applicable Additional Requirements for Notations (I-2-4), Section 2, G. of APC.

6.1.3 Hopper barge

The type and service Notation **Hopper barge**, applies to vessels specially equipped for carrying spoils or dredged material only, complying with the applicable Additional Requirements for Notations (I-2-4), Section 2, G. of APC.

6.1.4 Split hopper barge

The type and service Notation **Split hopper barge**, applies to vessels specially equipped for carrying spoils or dredged material only, and which open longi-tudinally around hinges in compliance with APC Rules.

8. Notations for working units

7.1 Type and service Notations

7.1.1 Tug

The type and service Notation **Tug**, applies to vessels specially equipped for towing, complying with applicable Additional Requirements for Notations (I-2-4), Section 2, E. of APC

7.1.2 Pusher

The type and service Notation **Pusher**, applies to vessels specially equipped for pushing, complying with applicable Additional Requirements for Notations (I-2-4), Section 2, E. of APC.

7.1.3 Launch

The type and service Notation **Launch** is assigned to small vessels which are used to provide facilities and assistance for the performance of specified activities, complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 2, H.

7.1.4 Pontoon

The type and service Notation **Pontoon** is assigned to units intended to carry cargo and/or equipment on deck only, complying with the APC Rules Additional Requirements for Notations (I-2-4), Section 2, F.

When a crane is permanently fitted on board, the type and service Notation **Pontoon** is completed with **"Crane"** for information only.

7.2 Additional Class Notations for Tug/Pusher

7.2.1 DGL

The type and service Notation **Tug** or **Pusher** will be completed by the additional Class Notation **DGL** when the tug or pusher is part of a pushed convoy or a side-by-side formation comprising a tank vessel carrying dangerous substances and complies with the APC Rules Additional Requirements for Notations (I-2-4), Section 3, A.4

7.2.2 DGD

The type and service Notation **Tug** or **Pusher** will be completed by the additional Class Notation **DGD**

when the tug or pusher is part of a pushed convoy or a side-by-side formation comprising a cargo vessel carrying dangerous substances and complies with the APC Rules Additional Requirements for Notations (I-2- 4), Section 3, A.5

8. Notations for miscellaneous units

8.1 Type and service Notations

8.1.1 Special service

The type and service Notation **Special service** is assigned to vessels which, due to the peculiar characteristics of their activity, are not covered by any of the type and service Notations mentioned above. The Classification requirements of such units are considered by APC on a case by case basis.

This type and service Notation may apply, for instance, to vessels engaged in research, expeditions and survey, vessels for training of personnel and other vessels with design features and modes of operation which may be referred to the same group of vessels.

An additional service Notation may be specified after the type and service Notation, e.g. **Special service/Floating dock**, to identify the particular service in which the unit is intended to trade. The scope of Classification of such units is indicated into the Certificate of Classification.

9. Other additional Class Notations

9.1 General

9.1.1 Other additional Class Notations express the Classification of additional equipment or specific arrangement, which has been requested by the Owner or Building Yard.

9.1.2 The assignment of these additional Class Notations is subject to the compliance with applicable additional Rule requirements.

9.2 Special considerations for hull structures

9.2.1 Materials

If vessels are constructed of normal strength hull structural steel, this will not be specially indicated. If other materials are employed for the hull, this will be indicated in the Notations in the Class Certificate, e.g.:

HS for higher strength hull structural steel

AL for aluminium

C for composite materials such as FRP

W for wood

Material selection, design, dimensioning and manufacturing of hull structures made of composite materials, such as fibre reinforced plastics (**C**), or wood (**W**) are to be agreed upon case by case with APC.

9.2.2 Type of construction

Based on the different types of construction of the hull of each vessel or unit, the following additional Notations are added as prefix to the type and service Notation:

Single hull, to vessels and units the hull of which is completely built with a single hull structure, as per applicable requirements of the Rules

Double hull, to vessels and units the hull of which is completely built with a double hull structure, as per applicable Rules requirements

With double bottom, to single hull vessels and units of which the hull is built with a double bot-tom only, as per applicable Rules requirements

With double sides, to single vessels and units of which the hull is built with double sides only, as per applicable Rules requirements

9.2.3 Independent cargo tank

A vessel carrying substances in independent cargo tanks which meet the requirements of the Rules, in particular those concerning parallelepipedic cargo tanks, or cylindrical pressure tanks, will be assigned the Notation **Ind** placed after the type and service Notation.

9.2.4 No-propulsion

Each non-propelled vessel or unit will be assigned the additional Class Notation **No-propulsion**, to be added to its type and service Notation, e.g. **Dredger/No-propulsion**.

9.2.5 Max. density – Max. t°

When applicable, the maximum allowed density, **Max. density** and/or temperature, **Max. t°** of the cargo or the liquids carried can be added to the type and service Notation as an additional Class Notation.

9.3 Navigation in ice

9.3.1 Ice

The additional Class Notation **Ice** is assigned to vessels the hull and machinery installation of which are designed such as to comply with the Rules requirements for navigation in drift ice in compliance with the applicable Additional Requirements for Notations (I-2-4), Section 4, A. of APC.

9.4 Stability Notations

9.4.1 Intact stability

The additional Class Notation **Intact stability** can be assigned to a vessel for which an intact stability calculation has been examined by APC and found to comply with specific Additional Requirements for Notations (I-2-4), Section 4, F. of APC.

The Certificate/attestation issued specifies the criteria considered for this examination and is to be annexed to the Classification Certificate. The intact stability file is to be available on board.

9.4.2 Damage stability

The additional Class Notation **Damage stability** can be assigned to vessels for which an intact and damage stability calculation have been examined by APC and found to comply with specific Additional Requirements for Notations (I-2-4), Section 4, F. of APC.

The Certificate/attestation issued specifies the criteria considered for this examination and is to be annexed to the Classification Certificate. The damage buoyancy and stability file is to be available on board.

9.4.3 The Certificates/attestations issued for intact stability and damage stability remain valid unless:

– the relevant structure, equipment or installations of the vessel are modified or not kept in a satis-factory condition of maintenance and operation

– the conditions of operation of the vessel differ from those taken into consideration for the ex-amination

– the proper applicable documentation examined by APC is not available on board

the Classification Certificate is not valid

The above mentioned validity is also applicable for other Class Notations considering intact and/or damage stability calculations.

9.5 Miscellaneous additional Class Notations

9.5.1 When the vessel's hull or essential parts have been constructed in accordance with a design, for which sufficient experience is not available, APC may also define other Notations by means of provisional requirements and guidelines, which may then be published in the form of tentative rules. APC will decide at what intervals the required periodical surveys will have to be carried out.

9.5.2 Procedures as developed by IMO such as LLC 66/68 and other Codes for seagoing ships may be adopted, as far as practicable, if no equivalent adequate Regulations are available.

10. Range of navigation

10.1 General

10.1.1 The assignment of one of these Notations does not absolve the owner from compliance with any international and national Regulations established by the Administrations for a vessel operating in national waters, or a specific area, or a navigation zone. Neither does it waive the requirements in Section 1, A.3.2.

10.1.2 Upon request of the prospective owner for a particular navigation condition, APC can calculate the vessel’s scantlings for any wave height between 1,2 m and 2 m, based on the provisions in the construction Rules, to be defined by APC. In such cases, the range of navigation Notation will be assigned accordingly.

10.1.3 The range of navigation which APC assigns upon examination of plans or any other equivalent procedure does not entirely determine the actual capa-bility of a vessel to operate in a specific area; this capability being dependent on other factors which are not considered in the Rules. Consequently, no com-parison should be made between a navigation Notation assigned by APC and a navigation zone or category as defined by national or international Regulations.

For vessels trading in defined river systems or waters only, deviations from the Rules requirements for the equipment may be either admitted or required by the Authorities.

In such cases, the range of navigation character will be supplemented by indication of the respective area or river system, e.g. **Danube** or **Amazon**.

10.2 Range of navigation IN(0)

The range of navigation **IN(0)** is assigned to a vessel having a structure with scantlings deemed suitable to navigate on still and smooth stretches of water.

10.3 Range of navigation IN(0,6)

The range of navigation **IN(0,6)** is assigned to a vessel having a structure with scantlings deemed suitable to navigate on stretches of water where there may be strong currents and a certain roughness of the surface on which a maximum significant wave height of 0,6 m can develop.

10.4 Range of navigation IN(1,2)

The range of navigation **IN(1,2)** is assigned to a vessel having a structure with scantlings deemed suitable to navigate on semi-maritime stretches of water or lakes on which a maximum significant wave height of 1,2 m can develop. See also 10.1.2.

10.5 Range of navigation IN(2)

The range of navigation **IN(2)** is assigned to a vessel having a structure with scantlings deemed suitable to navigate on semi-maritime stretches of water or lakes on which a maximum significant wave height of 2 m can develop. See also 10.1.2.

Section 3

Surveys

A. General

1. Surveys for maintenance of Class

1.1 For maintenance of Class, the regular peri-odical and non-periodical surveys of hull and machin-ery, including electrical installations as well as special equipment and installations agreed to be in the scope of Classification have to be performed as detailed in the following, see also Section 1, B.6.2.

The periodical surveys include:

the Class Renewal Survey, see C.

– the Intermediate Survey, see B.

the bottom survey, see E.

– the propeller shaft survey, see C.10.

the boiler survey, see F.

and surveys for the maintenance of additional Class Notations, where applicable. Such surveys are carried out at the intervals and under the conditions laid down in this Section.

Where there are no specific survey requirements for additional Class Notations assigned to a vessel, the equipment and/or arrangements related to these additional Class Notations are to be examined, as applicable, to the Surveyor's satisfaction at each Class Intermediate or Renewal Survey.

The surveys are to be carried out in accordance with the relevant requirements in order to confirm that the hull, machinery, including electrical installations, equipment and appliances comply with the applicable Rules and will remain in satisfactory condition.

Where the conditions for the maintenance of type and service Notations and additional Class Notations are not complied with, the type and service notation and/or the additional Class Notations as appropriate will be suspended and/or withdrawn in accordance with the applicable Rules given in Section 1, C.

It is understood that requirements for surveys apply to those items that are required according to the Rules or, even if not required, are fitted on board.

Unless specified otherwise, any survey other than bottom, propeller shaft or boiler survey may be effected by carrying out partial surveys or splitting of surveys, e.g. continuous survey hull and machinery, at different times to be agreed upon with APC, provided that such a survey procedure is adequately extensive. The splitting of a survey is to be such as not to impair its effectiveness.

1.2 In addition to the above periodical surveys, vessels are to be submitted to non-periodical surveys such as occasional surveys whenever the circum-stances so require.

Occasional surveys are carried out at the time of, for example:

– updating of Classification documents, e.g. change of the Owner, name of the vessel, flag and port of registration

– damage or suspected damage

– repair or replacement work

– alterations or conversion

– extraordinary surveys as parts of APC's quality assurance system

– postponement of surveys or of conditions of Class/recommendations

APC reserves the right, after due consideration, to change the periodicity, postpone or advance surveys, taking into account particular circumstances.

When a survey becomes due, the following applies:

– In the case of a Class Renewal Survey, APC may grant an extension provided there is documented agreement to such an extension and Class exten-sion surveys are performed prior to the expiry date of the Class Certificate, and APC is satisfied that there is justification for such an extension. In the case of Intermediate Surveys, no post-ponement is granted. The survey is to be com-pleted within their prescribed windows.

– In the case of all other periodical surveys and conditions of Class/recommendations, extension or postponement may be granted, provided there is sufficient technical justification for such an extension or postponement.

1.3 General procedure of survey

1.3.1 The general procedure of survey consists in:

– an overall examination of the parts of the vessel covered by the Rule requirements

– at random checking of selected items covered by the Rule requirements

– attending tests and trials where applicable and deemed necessary by the Surveyor

1.3.2 When a survey results in the identification of corrosion, structural defects or damage to hull, machinery and/or any piece of its equipment which, in the opinion of the Surveyor, affect the vessel's Class, remedial measures are to be implemented before the vessel continues in service.

1.3.3 APC's survey requirements cannot be considered as a substitute for specification and acceptance of repairs and maintenance, which remain the responsibility of the Owner.

1.4 Definitions and procedures related to surveys

1.4.1 Overdue surveys

Each periodical survey is assigned a limit date specified by the relevant requirements of the Rules (end of survey interval or end date of window) by which it is to be completed.

A survey becomes overdue when it has not been completed by its limit date.

1.4.2 Conditions of Class/recommendations

Any defect and/or deficiency affecting the Class, and which has to be dealt with within a limited period of time is indicated as a condition of Class/recommendation. A condition of Class/recommendation is pending until it is settled. Where it is not settled by its limit date, the condition of Class/recommendation is overdue.

1.4.3 Memoranda

Any information deemed noteworthy for APC's conven-ience as well as defects and/or deficiencies which do not affect the Class or the maintenance of Class, are to be indicated as memoranda. Memoranda are not to be regarded as conditions of Class/recommendations.

1.5 Preparations and conditions for surveys

1.5.1 Surveys required for maintenance of Class, e.g. in the case of repairs of, or modifications to any parts subject to Classification, are to be agreed with APC’s Head Office or the local APC representations in due time, so that the measures envisaged may be assessed and supervised as required.

1.5.2 The Surveyors are to be given access at any time to the vessel and/or to the workshops, so that they may perform their duties. The Owner is to provide the necessary facilities for the safe execution of the sur-veys.

For their internal examination, tanks and spaces are to be safe for access, i.e. cleared, cleaned, gas freed, ventilated, etc.

For survey of the vessel’s internal structure including close up survey, means are to be provided to enable the Surveyor to examine the structure in a safe and practical way.

Tanks and spaces are to be sufficiently illuminated, clean and free from water, scale, dirt, oil residues, etc. to reveal corrosion, deformation, fractures, damage or other structural deterioration.

Adapted rescue and safety equipment is to be available.

In this connection all areas to be surveyed have to be cleared, cleaned and are to be made gas-free, as deemed necessary by the Surveyor.

The Class Certificate and other documents related to Classification and carried on board are to be made available to the Surveyor.

1.5.3 In special cases, e.g. where damages require immediate inspection and decisions, a survey may be conducted while the vessel is not in harbour. The prerequisites, procedure and specific conditions to be met, e.g. weather, will be fixed case by case. The decision as to feasibility of the survey may only be taken in agreement with the Surveyor.

1.5.4 APC will inform the owner about the status of Class, indicating the last recognized surveys and the next due dates. However in principle it remains the responsibility of the Owner to comply with the Class conditions and to observe the dates for the prescribed surveys, see Section 1, B.

1.5.5 Upon request APC may agree to testing, moni-toring and analysis procedures as a supplement to or equivalent substitute for conventional survey methods.

1.5.6 APC reserves the right to extend the scope of a survey and/or inspection for given reasons, e.g. in case of suspected damage or other negative experience gained, possibly on board of similar vessels or vessels with similar components.

Likewise, APC reserves the right to demand surveys to be held between the due dates of regular periodical surveys.

2. Selection of Surveyors

2.1 General

On principle, the acting Surveyors will be chosen by APC. However, the Owner is free to have any findings of surveys and decisions resulting there from, which deem to be doubtful, checked by other APC's Surveyors upon special request to Head Office.

3. Documentation of surveys, confirmation of Class

3.1 General

3.1.1 The records of each survey, as well as any requirements upon which maintenance of Class has been made conditional, will be entered into the respective Survey Statement/Certificate.

By his signature in the certificate and other documents the Surveyor certifies what he himself has seen and checked during the particular survey. APC reserves the right to modify the endorsements made by the Surveyors.

3.1.2 In the Register the dates of the surveys will be indicated.

3.1.3 On request, the Class status may be confirmed in writing by a separate certificate/attestation issued by APC.

3.1.4 Where defects are repaired provisionally only, or where the Surveyor does not consider immediate repair or replacement necessary, the vessel's Class may be confirmed for a limited period. Cancellation of such limitations will have to be indicated in the Survey Statement/Certificate.

The inspection, measuring and test equipment used in workshops, Building Yards and on board vessels, which may form the basis for Surveyor's decisions affecting Classification or statutory work, shall be appropriate for the services to be performed. The firms shall individually identify and calibrate each unit of such equipment to a recognized national or international standard.

6. Periodical surveys

6.1 General

6.1.1 The periodical surveys listed in the following are to be conducted for the hull, machinery including electrical installations as well as special equipment and installations included in the Classification of the inland navigation vessel.

4. Surveys in accordance with Regulations of the Authority

If for some obvious reason, e.g. a temporary out-of-service condition of certain equipment, parts included in the Classification cannot be surveyed, this will be noted in the Survey Statement/Certificate.

4.1 General

All activities outlined in 4.2 and 4.3 and, where applicable, issuance of relevant certificates/attestations is likewise subject to the respective latest edition of Society’s General Terms and Conditions.

6.1.2 Where Flag State Regulations are applicable which impose inspection intervals deviating from the Class related intervals, the intervals will be harmonized in the individual case to reduce the number of single surveys, where possible.

4.2 APC’s intervention

Where surveys are requested by the Owner on account of international conventions, APC will carry them out by order or within the framework of official order, acting on behalf of the Authorities concerned, based on the respective provisions. This includes surveys according to e.g. ADN Regulations, Rhine Rules, European Directive, etc.

Where possible, such surveys will be carried out simultaneously with the Class surveys.

Personnel or firms engaged in services affecting Classification and statutory work are subject to approval by APC.

4.3 Validity of Certificates/attestations

If for some reason a vessel's Class has expired or has been withdrawn by APC, all Certificates/attestations issued by APC will automatically become void. If subsequently the Class is renewed or reassigned, the validity of these Certificates/attestations may be revived within the scope of their original period of validity, provided that all surveys meanwhile having fallen due have been carried out to the satisfaction of the Surveyor.

5. External service suppliers

5.1 General

7. Surveys relative to Class Notations from other APC’s Rules

7.1 General

The surveys requested for granting of Class Notations defined in APC's Rules but not in inland navigation Rules have to be performed according to corresponding requirements for maintenance of Class.

8. Class extension surveys

8.1 General

On owner’s special request and following surveys of hull and machinery afloat, APC may within two periods of Class, extend the Class by no more than 12 months in total, provided that the surveys show that hull and machinery are in unobjectionable con-dition.

In that case, the last survey in dry-dock shall not date back more than 5 years, counting from the date of the respective Class renewal survey.

With ships of over 20 years of age or the hull structural elements of which are riveted, the last survey in dry-dock shall not date back more than 3 years.

poor condition (see G.2.10), maintenance of Class is to be subject to the tanks in question being examined

B. Intermediate Surveys

1. General

The Intermediate Survey becomes due 2,5 years after the commencement of the period of class and has to be carried out between six month before to six month after this date.

2. Surveys performance

2.1 General

2.1.1 Intermediate Surveys shall include all the inspections and checks required for eventual annual surveys. Additionally, the following requirements shall be observed.

Note

More extensive Regulations of the country, where the vessel is registered, are to be observed.

2.1.2 The requirements apply to inland navigation vessels in general. Additional requirements may have to be observed for particular vessel types, due to request of the Owner or in connection with manufacturer's recommendations for special equipment.

3. Hull structure

3.1 General

3.1.1 The main structural elements of the hull are to be subjected to a general visual inspection, as far as accessible. If applicable, ballast tank, storage and engine rooms are to be surveyed at random, depending on the vessel type and the age and general condition of the vessel. Where damages or excessive wastage affecting the Class are suspected, the Surveyor is entitled to carry out further investigations as well as thickness measurements, if required.

3.1.2 The rudder and manoeuvring arrangement and the anchor equipment are to be checked for visible damages. For the related machinery and for operability, see 4.1.1.

3.1.3 The foundations and their substructure of special equipment, particularly on the upper deck, shall be inspected for damages.

3.1.4 Depending on the vessel's age, the Surveyor may require opening of ballast tanks for visual inspection, particularly if deterioration of the coating or excessive wastage has already been observed at previous surveys.

If the coating in such ballast tanks is found to be in

at annual intervals, and thickness measurements carried out as considered necessary.

If coating is to be partly or totally renewed, only approved coating is applicable in case of a repair. The whole working procedure including the surface preparation has to be documented.

3.1.5 Compartments and rooms normally not accessible, or accessible only after special preparations, may be required to be opened for inspection, depending on the vessel's age and available information about service conditions.

3.1.6 Hatches and covers, bow, side and stern doors

Hatches and covers, bulkhead and hull doors, ramps and any openings in the outer shell shall be surveyed regarding structural integrity as well as tightness and operability of all closures.

Additionally to the overall survey the following structural members of bow, side and stern doors are to be thoroughly inspected:

– all hinges and the pertinent hydraulic cylinders in way of their securing points

– all securing elements of the locking devices and stoppers

Where considered necessary by the Surveyor, additionally crack tests shall be carried out at structural members of bow, side and stern doors.

Essentially, the crack tests will cover:

– main joining welds and their interfacial areas both on the vessel's hull and on the doors

– highly stressed areas in way of the centres of rotation of the hinges

– highly stressed areas of the locking devices and their stoppers

repair welding

For crack detection the dye penetration method or the magnetic particle inspection method shall be employed, and a test protocol is to be prepared.

3.2 Dry dock survey

When the vessel is granted with the range of navigation **IN(1,2)** to **IN(2)**, a dry dock survey has to be carried out. Hull plates before protective application, appendages, discharge valves, river chests, etc have to be examined. In case of doubt, thickness measurements can be requested by the Surveyor.

For performance of dry dock surveys, see E.

4. Machinery

4.1 General

4.1.1 The machinery including electrical installa-tions will be subjected to the following surveys and operational checks:

– general inspection of machinery and boiler rooms, with special regard to the propulsion sys-tem, the auxiliary engines, possible fire and ex-plosion sources, and checking of emergency ex-its as to their free passage

– external inspection of boilers and pressure ves-sels, with their appliances and safety devices. For details regarding boilers, see F.

– inspection and checking of the remote control, quickclosing/ stopping devices of pumps, valves, ventilators, etc.

– random checking of the remote control and automation equipment

– inspection and functional checking of the main and auxiliary steering gear, including their ap-pliances and control systems

– if applicable, checking of all communication systems between bridge and machinery/boiler and steering gear rooms

– inspection of the bilge system, including remote control actuators and bilge filling level monitors

– checking of the main and emergency power supply systems, including the switch gear and other important electrical installations

– survey of explosion-proof installations

– random inspection and checking of essential equipment to the Surveyor’s discretion

4.1.2 Fire extinguishing systems

The following items/systems are subject to inspection and/or testing, where applicable:

fire mains system, including hoses and nozzles

– gas fire extinguishing system

dry powder fire extinguishing system

foam fire extinguishing system

– emergency stops for ventilation fans, boiler forced draft fans, fuel transfer pumps, fuel oil purifiers

quick-closing fuel valves

– fire closures, fire dampers, etc.

fireman’s outfits, if required

4.1.3 Fire hoses and nozzles

Fire hoses and nozzles provided are to be included in the testing of the fire mains system to the Surveyor’s discretion.

4.1.4 Fixed fire extinguishing systems

Fixed fire extinguishing systems, such as gas, foam, dry powder or water mist systems, including gas cyl-inders are subject to maintenance every 2 years.

On the occasion of these inspections all hose assem-blies shall be subjected to a visual check. All hose assemblies made of synthetic rubber shall be replaced according to manufacturer’s instructions.

The installation, maintenance, monitoring and docu-mentation of fixed fire extinguishing systems accord-ing to Statutory Regulations, for the engine room, pump room and all spaces containing essential equip-ment, such as switchboards, compressors, etc., and for the refrigeration equipment, if any, shall only be per-formed by recognised specialized companies.

4.1.5 Portable and mobile fire extinguishers

Portable and mobile fire extinguishers are subject to inspection by approved or recognized specialized company every 2 years. Maintenance and eventual pressure testing shall be carried out as appropriate in accordance with the manufacturer's instructions or applicable Rules. Each extinguisher is to be provided with a label showing the date of inspection and name and signature of the approved or recognized special-ized company.

A protocol of the inspections and maintenance work carried out is to be kept on board.

– sprinkler system, including water mist sprinkler system

water and/or foam drencher system

– any other fixed fire extinguishing system pro-vided

– portable fire extinguishers, mobile fire extinguishers, including portable foam application units

fire detection and alarm systems

4.1.6 Foam concentrate

Foam concentrate for fixed foam fire extinguishing systems is to be examined not later than 3 years after filling into the system, and yearly thereafter. The examination is to be performed by the manufacturers or by an independent recognized laboratory. Reports are to be presented to the Surveyor. Manufacturer's certificates stating the properties of the foam concentrate shall be available on board for reference.

The foam concentrate for the portable foam applicators is to be renewed on the occasion of each Class renewal.

More extensive regulations of the Owner regarding other inspection intervals/performance of the tests should be observed.

4.1.7 Measurements

The following measurements are generally to be performed unless it can be proved by valid protocols that they have been carried out recently:

crank web deflection, main engine(s)

– crank web deflection, auxiliary diesel engine(s) (where relevant)

– axial thrust bearing clearance of shafting sys-tem(s)

– axial thrust bearing clearance of main and auxil-iary gas turbine rotors (where applicable)

– insulation resistance of generators and electrical motors, including cabling and switch gear.

4.1.8 Operational tests

In addition to the requirements under 4.1.1, the following system components are to be subjected to operational tests:

– emergency generating set, including emergency switchboard (where applicable)

emergency bilge valve(s)

– bilge, ventilation and monitoring systems for the carriage of dangerous substances

– drainage facilities of starting-air and control-air receivers

– general operational test of the machinery and electrical installation to demonstrate unrestricted operability, as indicated by the Surveyor

4.1.9 Monitoring equipment

The monitoring equipment and the automated functions of the machinery installation are to be subjected to operational trials under service conditions. The bridge remote control equipment of the propulsion system will be examined as required by the Surveyor.

4.1.10 Machinery installations and safety systems on tankers

On tankers the following installations and equipment are to be checked:

– electrical equipment, in particular electrical installations in areas of explosion hazard, in which ignitable gas mixtures or water vapours may accumulate

level/overfill alarms

level indicators

tank venting systems

flame arresters

piping, valves and fittings, pumps

– pump room equipment, including ventilation system

fire-extinguishing equipment

pressure/vacuum relief valves

On gas tankers, the following additional surveys are to be carried out:

venting system of cargo tanks and holds spaces

– all gastight bulkhead penetrations including gastight shaft sealing, if provided

– cargo handling control and safety systems, if practicable, such as:

– emergency shut down valves at shore con-nections and tanks

– control, alarm and safety sytems monitor-ing the pressure in cargo tanks, cargo pip-ing and hold spaces

– cargo tanks level gauging including alarm and safety functions

– cargo temperature monitoring systems

– control, alarm and safety systems of cargo compressors and cargo pumps

– gas detection equipment including indicators and alarms in operation

ventilation systems of all spaces in cargo area

– inert gas or dry air installations in operation, including the means for preventing backflow of cargo vapour to gas safe areas

gastightness of wheelhouse doors and windows

– sealing arrangement of tank/tank domes, pene-trating decks/tank covers, of portable and per-manent drip trays or insulation for deck protec-tion in the event of cargo leakage

5. Installations under pressure

For steam boiler installations, thermal oil plants and pressure vessels, see F.

C. Class Renewal Surveys

1. General

1.1 Scope

1.1.1 Class Renewal Surveys - also called special surveys - are to be carried out at the intervals p indi-cated by the Character of Class period.

1.1.2 Upon request, in exceptional cases extension of the Class period may be granted by APC, see A.8.1.

1.1.3 Class renewals for hull are numbered in the sequence I, II, III, etc. Regarding their scope, see 2.

1.1.4 A Class Renewal Survey may be carried out in several parts. The survey may be commenced at the last year during the Class period. Considering 1.1.2, the total survey period of the Class Renewal Survey shall not exceed 12 months, except under special circumstances and by prior agreement from APC.

1.1.5 The new period of Class will commence:

– with the following day, after which the previous Class expires, provided that the Class Renewal Survey has been completed within the 3 months preceding that date. In case of extension of va-lidity of Class Certificate, the period of Class will commence the following day after which the extension period expires

– with the date on which the Class Renewal Sur-vey has been completed, if this is the case more than 3 months before expiry of the previous Class

1.2 Class Renewal Survey performance

1.2.1 In addition to the inspections and checks to be carried out on occasion of the Intermediate Surveys, for Class Renewal the following requirements shall be observed.

1.2.2 The Class Renewal Survey is in principle to be held when the vessel is in dry dock or on a slipway unless a dry docking survey has already been carried out within the admissible period, see 1.1.4 and E.

2. Hull and hull equipment

2.1 Class Renewal I

2.1.1 Class Renewal I will have to be performed at the end of the first Class period p. For definition see Section 1, A.1.2.7.

2.1.2 Conditions for surveys

When examination of associated structure is required, insulation of compartments intended for refrigerated cargoes is to be removed over the necessary extent for examination by the Surveyor of the condition of the structure, unless constructional arrangements make such inspections possible without removing the insulation.

If deemed necessary by the Surveyor, defective cement and asphalt covering are to be removed. The steel work is to be examined before painting or before the cement or other coverings are renewed.

2.1.3 Equipment for surveys

One or more of the following fracture detection methods may be required if deemed necessary by the Surveyor:

radiography (X or gamma rays)

– ultrasonic test

magnetic particle test

dye penetrant test

2.1.4 Hull, general

At the Surveyor's discretion, the survey on principle covers the whole hull structure, particularly those areas which from experience are known to be exposed to fatigue and corrosion, such as openings in the shell and in the deck including doors and hatch coamings and covers, tanks, engine foundations and ends of superstructures. As a matter of principle, all machinery spaces, dry spaces, store rooms, pipe tunnels, cofferdams and void spaces are to be examined, including the piping systems.

2.1.5 Tank surveys

The ballast tanks are to be inspected at the Surveyor's discretion, the procedure as outlined in 2.3.3 shall be followed.

Fuel oil, lubricating oil and fresh water tanks need not to be emptied, if their tightness can be verified by an external examination while they are completely filled and there is no reason for doubt as to their unobjectionable condition. However, fore and after peak are in any case subject to internal examinations at each Class Renewal Survey.

2.1.6 Tightness and pressure tests

Each compartment of the double bottom, cofferdams and all tanks, the boundary plating of which forms part of the vessel's main structure, are to be subjected to pressure tests. Fuel oil, lubricating oil and fresh water tanks may be tested by filling with the respec-tive liquid.

The test pressure applied is to correspond to a head of water up to the top of the overflow/air pipe or up to the hatch of a tank, where applicable, whichever is higher. For oil, lubricating oil tanks, the test pressure applied is to correspond to a head of liquid up to the top of the tank.

The tightness of pipe tunnels outside the inner bottom, and of void spaces, may be tested by air pressure. Air pressure testing of other spaces is to be agreed with the Surveyor from case to case. The overpressure shall not exceed 0,2 bar and not be less than 0,1 bar.

2.1.7 Thickness measurements

If the Surveyor has reason to suspect inadmissible corrosion, he may require the rust to be removed from parts of the structure and thickness measurements to be carried out, see G.

2.1.8 Rudder, equipment, deck openings, etc.

The Class Renewal Survey also covers other parts essential for the operation and safety of the vessel, such as rudder and steering gear, watertight doors, sluice valves, air and sounding pipes, gas-freeing and safety arrangements of cargo tanks, companionways,

hatches, scuppers and water drain pipes with their valves, fire protecting arrangements, masts, anchors, anchor chains and hawsers.

The rudder, rudder couplings and bearings, as well as the stock are to be surveyed in mounted condition, the rudder clearance to be measured and documented. The steering gear is to be subjected to an operational trial.

If considered necessary in view of the inspection results, the rudder and/or parts of the steering gear may have to be dismantled.

Bow, side and stern doors, if any, are to be checked.

2.1.9 Engine room structure

Particular attention is to be given to tank tops, shell plating in way of tank tops, brackets connecting side shell frames and tank tops, engine room bulkheads in way of tank top and the bilge wells. Where wastage is evident or suspected, thickness measurements are to be carried out.

For cargo pump rooms the survey consists of the verification of the good condition of:

– access ladders

sumps

– all bulkheads for signs of leakage or fractures and in particular, the sealing arrangements of the bulkhead penetrations

piping systems, their pumps and auxiliaries

– pump room ventilation system including duct-ing, dampers and screens

10.3.3 Tankers

On tankers which - as can be proved - have exclusively carried cargo not causing corrosion, the cargo tanks shall be inspected at each alternate Class Renewal only, provided that it may be assumed on the basis of random checks that the component parts are still in satisfactory condition, and provided that no objections will result from the tightness and pressure tests as per 2.1.6.

During each Class renewal, the cofferdams of tankers are to be hydrostatically tested to the test pressure as defined in the APC Rules for Hull Design and Construction (I-2-2), Section 2, D. and Section 8, C.

At each alternate Class Renewal only, the cargo tanks of tankers including gas collector if any, are to be tested by water and/or air pressure, to the test pressure stated in the Rules. In case of air tightness and pressure test , the test has to be made according to 2.1.6. Where substances are carried which cause corrosion in connection with water, the kind of testing is to be specified.

At each Class renewal, tanks of tankers carrying acids and lye solution will be subjected to an internal examination and, at each alternate Class renewal, to a hydrostatic pressure test. The test pressure to be fixed

in accordance with the APC Rules for Hull Design and Construction (I-2-2), Section 2, D., depends on the density of the cargo.

2.1.11 Gas tankers

In addition to the requirements given under 2.1.10, the renewal survey of these vessels consists of the following examinations, measurements and testing:

a) Thickness measurements and non-destructive testing of cargo tanks:

– Thickness measurements of cargo tanks may be required. During these examinations, the state of insulation is checked around the con-sidered areas.

– During the internal survey of the tanks, a non destructive testing procedure supplements the examination of cargo tanks, according to a programme and control means approved be-forehand by APC.

– When independent tanks (cylindrical under pressure) are concerned, in principle, 10% of the length of welded seams, in critical areas are tested: tank supports, reinforcement rings, attachment of hollow bulkheads, weldings of the fittings (domes, sumps) to the tankplates, supports of pumps, ladders, pipe connections. It may be necessary to remove partially the tank insulation to perform these examina-tions.

– For tanks where anti-corrosion coatings are found to be in satisfactory condition, the ex-tent of thickness measurements may be spe-cially considered, at the discretion of the Sur-veyor.

b) Testing of cargo tanks:

– Tanks for the carriage of pressurized lique-fied gases are to be tested like pressure ves-sels. Deviating there from, cargo tanks need to be subjected to an internal inspection on the occasion of each other subsequent Class Renewal only, if in these tanks only gases or gas mixtures have been carried, which have no corrosive effect upon their walls, and if random checks suggest that the tanks are in satisfactory condition.

– Tightness of cargo tanks and domes is to be verified. However, for a vessel of less than fifteen years of age, a separate tightness test may not be required for each tank, provided the examination of the log book raises no doubts as to their tightness.

– Where the results of tanks examination and testing, or the examination of the log book raise doubts as to the structural integrity or tightness of a cargo tank, or when significant repairs have been carried out, hydraulic or hydropneumatic testing is to be carried out.

istics of the products transported.

c) External examination of cargo tanks:

– All independent tanks are to be examined externally wherever practicable. Where the insulation of a cargo tank or of the hull struc-ture is accessible, the Surveyor examines the insulation externally including any vapour or protective barrier. If considered necessary by the Surveyor, insulation is to be removed in part or entirely so as to check the condition of the tank. Cargo tank supports, chocks and keys and the adjacent hull structure are to be examined.

– Pressure relief valves of cargo tanks are to be opened up for examination, adjusted, sealed and tested to the Surveyor's satisfaction.

– Pressure/vacuum relief valves or other pres-sure relief devices in the tank spaces, are to be examined to the Surveyor's satisfaction and, according to their design, opened up, ad-justed and tested.

d) Examination of the cargo area:

– The venting system of cargo tanks and hold spaces is to be checked. All gastight bulk-heads are to be examined. Gastight bulkhead penetrations, including eventual gastight shaft sealings, are to be examined.

– Gas detection equipment, including indicators and alarms in operation, are to be verified in good working order.

– The inert gas or dry air installation in opera-tion, including the means for preventing backflow of cargo vapour to gas safe areas will be checked.

– Sealing arrangements of tanks/tank domes, penetraing decks/tank covers, of portable and permanent drip trays or insulation for deck protection in the event of cargo leakage are to be verified.

– Hose and spool pieces used for segregation of piping systems for cargo, inert gas and bilge are to be examined.

2.1.12 Tankers, piping systems

Cargo piping, including valves and fittings, pumps as well as gas-freeing and safety equipment is to be sur-veyed.

At each Class renewal, the loading and discharge pipes of tankers are to be tested to 1,25 times the al-lowable working pressure.

Note

When components are replaced in the cargo handling installation, it is the responsibility of the Owner to verify their compatibility with the chemical character-

2.2 Class Renewal II

2.2.1 The requirements for the second Class Renewal include those for Class Renewal I. Additionally the following investigations are to be carried out.

2.2.2 The structural parts behind ceilings, floor coverings and insulation are to be examined, as required by the Surveyor and depending on the general condition of the vessel, see also 2.3.2.

2.2.3 In principle, all tanks and cargo tanks are to be examined internally. The fuel oil, lubricating oil and fresh water tanks are to be at least examined at random, as required by the Surveyor. If applicable, in vessels aged 2p years and over, during the Class Renewal Survey, all ballast tanks are to be examined for damages to the hull structural elements and to the coating. If applicable the procedure as outlined in B.3.1.4 shall be followed.

Peak tanks see 2.1.5.

2.2.4 The chain cables are to be ranged so that they can be examined for wear and other damages throughout their length. The mean diameter of the anchor chain cables is to be determined on at least 3 links per length.

2.2.5 For thickness measurements, see G.

2.3 Class Renewal III and subsequent ones

2.3.1 The requirements for the third and the subsequent Class renewals include those for the Class Renewal II. Additionally, the following investigations are to be carried out.

2.3.2 Ceilings, linings and insulation of all spaces and cargo holds including steel ceiling adjacent to the shell plating and the inner bottom shall be removed, as indicated by the Surveyor, to enable the steel structure to be examined in detail.

For Class Renewals III and subsequent ones, the inner bottom ceilings may be partially removed at the Surveyor’s discretion, to enable their assessment.

For Class Renewals IV and subsequent ones the inner bottom ceilings are to be completely removed and the tank top is to be carefully cleaned, such as to enable proper assessment of the tank top's condition.

The wall lining underneath windows in the outer shell is to be lifted as required by the Surveyor so that the structure behind may be examined.

2.3.3 All tanks and cargo tanks are to be examined internally. The fuel oil, lubricating oil and fresh water tanks are to be examined internally and tested in accordance with the requirements, at the Surveyor's discretion, see also 2.2.3. In the case of ballast tanks the procedure as outlined in B.3.1.4 shall be followed, if applicable.

Peak tanks see 2.1.5.

2.3.4 The rudder body is to be examined. The connections to the rudder stock and pertinent securing devices are to be inspected. Clearance has to be checked.

The rudder stock is to be surveyed as far as accessible. If deemed necessary in view of findings during this external inspection, the stock is to be dismantled. In way of the bearings, stock and pintle are to be examined for corrosion.

2.3.5 The weight of the anchors is to be checked.

3. Machinery

3.1 General

Except for individual machinery components as indicated in the following, the scope of all Class Renewal Surveys related to the machinery including electrical installations is identical. If the continuous Class Renewal system is applied, the indications according to APC are to be observed.

The Class Renewal Survey includes the surveys and checks in B.4.

3.2 Surveys requiring dry docking

While the vessel is in dry dock, the river inlet and discharge valves are to be examined as to their condition and to be opened up and overhauled once within the Class period.

Bow thrusters and positioning equipment are to be subjected to a general survey and to trials upon floating of the vessel.

For propeller(s), propeller and stern tube shaft(s), see 9.

3.3 Propulsion system and auxiliaries

3.3.1 General

Inspection of the propulsion system is mainly to cover:

– intermediate shafts and bearings, including thrust bearings

– gearing

– mechanical and flexible couplings

turning gear

the main propulsion engines, see 3.3.2.

Spring elements made of rubber ring clutches with or without plies of fabric and under shear load, and other rubber or fibre reinforced plastic couplings are to be renewed, if required on account of negative inspection results.

3.3.2 Main propulsion diesel engines

The following components are to be inspected and checked in the dismantled condition, where deemed necessary by the Surveyor:

– cylinders, cylinder covers, pistons, piston rods and bolts, cross heads, crankshaft and all bear-ings

camshaft, with drive and bearings

– tie rods, frame, foundation and fastening ele-ments

– injection system, attached pumps and compres-sors, superchargers, suction and exhaust lines, charging air coolers, filters, monitoring, control, protective and safety devices, starting, reversing and manoeuvring equipment

Class Renewal Survey of the main engine can be made during the main overhaul subject to the presence of the surveyor.

Note

In case of medium speed diesel engines, dismantling and replacement of main and crank bearings may be postponed until the service life limits have been reached.

3.3.3 Auxiliary engines

For all auxiliary engines, the survey scope is identical to that applying to the main engines. A reduction in the scope of survey may be agreed to upon examination of the maintenance protocols.

3.4 Auxiliary machinery, equipment and piping, survey performance

The following components are to be inspected and tested in dismantled condition, where deemed necessary by the Surveyor:

– all pumps of the essential systems

– air compressors, including safety devices

– separators, filters and valves

coolers, pre-heaters

– main and auxiliary steering gear

anchor and other windlasses, including drives

– piping, pipe connections, compensators and hoses

– emergency drain valves and bilge piping sys-tems

tank filling level indicators

– installations preventing the ingress of water into open spaces

freshwater distillation plant, where provided

oil purifier and sewage systems

– additional systems and components, where deemed necessary by the Surveyor, as well as special equipment and installations if included in the scope of Classification

3.5 Gas tankers

3.5.1 Cargo handling installation

Cargo piping system including valves, their monitoring devices, etc. are to be opened up for examination and their insulation removed as the Surveyor deems necessary. The complete system is tested to 1,25 times the design pressure. If the maximum delivery pressure of pumps is less than the design pressure of the piping system, testing to the pumps maximum delivery pressure may be accepted. In such cases, selected expansion bellows are to be dismantled, examined internally and tested to their design pressure to the Surveyor's satisfaction.

All pressure relief valves are to be opened up for examination, adjusted, sealed and tested to the Surveyor's satisfaction.

Cargo pumps, compressors, heat exchangers and other machinery including their prime movers which are a part of the cargo handling installation are to be examined.

3.5.2 Cargo handling control and safety installations

The cargo handling control and safety installations such as:

– emergency shut down valves at shore connec-tions and tanks

– control, alarm and safety systems monitoring the pressure in cargo tanks, cargo piping and hold spaces

– cargo tanks level indicators including alarm and safety functions

cargo temperature monitoring systems

– control, alarm and safety systems of cargo compressors and cargo pumps

are to be verified on good working.

Note

When components are replaced in the cargo handling installation, it is the responsibility of the Owner to verify their compatibility with the chemical characteristics of the products transported

4. Electrical installations

4.1 Propulsion machinery

The electric cables and their connections are to be inspected.

The insulation resistance of all electric machinery and equipment is to be tested.

4.2 Dynamic positioning systems

Dynamic positioning systems, if any, including control systems, are to be subjected to operational tests.

4.3 Auxiliary machinery and systems

The electrical machinery and equipment, including the generators, the motors of the essential services, the switch gear including its protective and interlocking devices, as well as the cable network are to be inspected externally. The remote stopping system, navigation lights, alarms, etc. are to be examined for proper operation. For vessels carrying dangerous goods, the condition of safety electrical equipment in relation to explosive atmospheres especially in cargo area has to be checked.

The insulation resistance is to be measured.

4.4 Explosion protection

Electrical installations and equipment located in spaces in which there is a risk of inflammable gas or vapour/air mixtures accumulating, are to be checked as to the explosion protection provided.

5. Pipes in tanks

5.1 General

Where pipes are led through tanks, they are to be examined and, if required by the Surveyor, subjected to hydraulic tests, if for the respective tanks an internal examination is required. Depending on the results obtained, thickness measurements may be required.

6. Fire extinguishing and fire alarm systems

6.1 General

Proof is to be furnished to the Surveyor that the entire fire extinguishing equipment is ready for operation and in a satisfactory condition.

If the vessel is propelled by electrical machinery, the propulsion motors, the propulsion generators and exciters, particularly the windings of these machines, and their ventilating systems are to be examined and tested. Checking of the electric switch gear for oper-

ability is to cover also the protective, safety and interlocking devices.

On the occasion of every Class Renewal Survey, the installation shall be subjected to a visual inspection and test if deemed necessary by the Surveyor.

Equipment (cylinders, bottles, fire extinguishers, etc) has to be inspected according to the manufacturer's instructions or applicable codes by an approved or recognised company. Reports of these inspections have to be provided to the Surveyor.

Emergency exits/escapes are to be inspected.

7. Spare parts

7.1 General

If needed and in order to be able to restore machinery operation and manoeuvring capability of the vessel in case of damage, spare parts for the main propulsion and the essential equipment shall be available on board, documented and maintained in a corresponding list.

8. Trials

8.1 General

Upon completion of the surveys for Class renewal, the Surveyor shall be satisfied that the entire machin-ery installation including electrical installations and steering gear, as well as special equipment and in-stallations are operable without any restrictions. In case of doubt, trials and/or operational tests may be necessary.

9. Periodical surveys of propeller shafts and tube shafts, propellers and other systems

9.1 General

For maintenance of the Class, periodical surveys and tests of propeller shafts and tube shafts, propellers and other systems of vessels are to be carried out. The scope of surveys and tests unless specifically restricted is defined in 10.

The following surveys are applicable for propeller shafts and tube shafts:

normal survey

modified survey

partial shaft survey

9.2 Normal survey for propeller shafts and tube shafts

9.2.1 Where the propeller shafts and tube shafts are:

– fitted with continuous liners, or

protected against corrosion, or

mechanically grease-lubricated, or

– fitted with approved oil sealing glands, or

made of corrosion resistant materials, or

– of increased corrosion allowance to APC satisfac-tion

the interval of survey is to be 5 years possibly in con-nection with the dry dock survey, in any of the follow-ing three cases:

the propeller is fitted to a keyed shaft taper,

or

– the propeller is fitted keyless to the shaft taper, or

– the propeller is fitted to a solid flange coupling at the aft end of the shaft, the design details of which are approved

A non-destructive examination is to be made at each survey by an approved crack-detection method of the after end of the cylindrical part of the shaft (from the after end of the liner, if any), and of about one third of the length of the taper from the large end and of the area of keyway for keyed propellers, or of the forward part of the aft shaft taper for keyless propellers, or of the aft fillet flange area of the shaft for solid flange coupling propellers.

In all other cases, the nominal interval of survey may be shorter. The scope and extent of survey is to be agreed with APC.

9.2.2 Propeller shafts and tube shafts are to be sufficiently drawn to permit entire examination. For further details see 10.2.2.

For oil lubricated arrangement, the shaft need not be drawn at the occasion of the normal survey, provided that all exposed areas of the after shaft area as described in 9.2.1 are examined by an approved crack-detection method without drawing of the shaft, where:

– the clearances and wear down of the bearings

– the records of lubricating oil analysis, oil consumption

the visible shaft areas

are examined and found satisfactory. Lubricating oil controls are to be performed as specified in 9.3.2. For further details see 10.2.3. Where any doubt exists regarding the findings of the above, the shaft is to be sufficiently drawn to permit an entire examination.

9.2.3 Where the propeller is fitted on a solid flange coupling at the end of the shaft and in the case of proven designs and agreement of APC, the crack detec-tion test of the aft coupling flange fillet area of the shaft may be dispensed with.

9.3 Modified survey for propeller shafts and tube shafts

9.3.1 For single and multi-shafting arrangements a modified survey may be accepted instead of the normal survey at alternate p, possibly in connection with the dry dock survey, at the most, subject to:

– the shaft is fitted with oil lubricated bearings and oil sealing glands, or it is mechanically grease-lubricated

– the shaft and its fittings are not exposed to cor-

– new oil seals may be fitted without removal of the propeller (except in the case of keyed pro-peller)

– the design details are approved

– and provided that the clearances of the aft bear-ing are found in order and the lube oil and the oil sealing arrangements have proved effective in any of the following three cases:

– where the propeller is keyed on the shaft taper and suitable crack-prevention meas-ures are taken, or

– where the propeller is fitted to a solid flange coupling at the end of the shaft, or

– where the propeller is fitted keyless to the shaft taper

The maximum interval between two successive normal surveys is not to exceed 2 periods of Class.

9.3.2 The shaft is to be sufficiently drawn to permit examination of the aft bearing contact area of the shaft. For further details see 10.3.2.

Drawing of the shaft to expose the aft bearing contact area of the shaft may not be required where a lubricating oil analysis is carried out regularly at intervals not exceeding 6 months, and the oil consumption is recorded and considered to be within permissible limits. The documentation on lubricating oil analysis is to be available on board and be checked. Each analysis should include the minimum parameters:

water content

chloride content

– content of bearing metal particles

oil aging (resistance to oxidation)

Oil samples should be taken under service conditions. For further details see 10.3.3. Where any doubt exists regarding the findings of the above, the shaft is to be sufficiently drawn to permit an examination according to 10.2.2.

9.4 Propellers

During normal or modified surveys of the propeller shafts and tube shafts, the propellers as well as the remote and local control gear of controllable pitch propellers are to be surveyed at the Surveyor's discretion, depending on the findings.

9.5 Other systems

Other systems for main propulsion purposes, such as rudder and steering propellers, pod propulsion systems, pump jet units, etc., are subject to the same survey intervals as propeller shafts and tube shafts.

The scope and extent of the surveys will be defined by APC.

10. Survey performance of propeller shafts and tube shafts, propellers and other sys-tems

10.1 General

The periodical surveys and tests of propeller shafts and tube shafts, propellers and other systems (when applicable) are to be performed as follows.

10.2 Normal survey for propeller shafts and tube shafts

10.2.1 General

The prerequisites are defined in 9.2. It is distinguished between:

– survey with drawing of the shaft

survey without drawing of the shaft

10.2.2 Survey with drawing of the shaft

The scope of normal survey consists in the following:

– dismantling of propeller and key, where fitted, visual inspection of all parts of the shaft espe-cially the cone, the keyway, the bearing contact areas of the shaft, the bearings, and the thread of the propeller nut, or the fillet of the flange, ex-amination of the propeller fit

– non-destructive examination by an approved crackdetection method of the aft end of the cy-lindrical part of the shaft and of about one third of the length of the taper from the large end and of the area of the keyway, or the fillet of the flange in case of a solid flange coupling

– examination of the bearing clearances and/or wear down before dismantling and after reas-sembling of the shaft with recording of the val-ues measured

– overhaul of the shaft sealing glands according to manufacturer's instructions (sealing rings, liners, etc.)

10.2.3 Survey without drawing of the shaft

Where the prerequisites as defined in 9.2.2 apply, for oil lubricating arrangement the scope of normal survey without drawing of the shaft consists in the following:

– examination of all accessible parts of the shaft including the propeller connection to the shaft

– non-destructive examination by an approved crackdetection method of the aft end of the cy-lindrical part of the shaft and of about one third of the length of the taper from the large end and of the area of the keyway for keyed propellers, or of the forward part of the aft shaft taper for keyless propellers, or of the after fillet flange area of the shaft for solid flange coupling pro-pellers. The area to be examined is to be suffi-

ciently exposed, if necessary by shifting of the propeller shaft or backing-off of the propeller

– examination of the bearing clearances, respec-tively wear down of the aft bearing

– overhaul of the shaft sealing glands according to manufacturer's instructions (sealing rings, liners, etc.)

– examination of the records of all regularly car-ried out lubricating oil analyses

– examination of the records of the oil consump-tion

Where doubts exist regarding the findings, the shaft is to be drawn to permit an entire examination.

The crack detection test of the aft flange fillet area of the shaft for solid flange coupling propellers may in the case of proven designs be omitted with the agree-ment of APC. See also 9.2.3.

10.3 Modified survey for propeller shafts and tube shafts

10.3.1 General

The prerequisites are defined in 9.3. It is distinguished between:

– survey with exposing the aft bearing contact area of the shaft

– survey without exposing the aft bearing contact area of the shaft

10.3.2 Survey with exposing the aft bearing con-tact area of the shaft

The scope of the modified survey consists in the fol-lowing:

– drawing the shaft to expose the aft bearing con-tact area of the shaft

– examination of the forward bearing as far as possible and of all accessible parts of the shaft including the propeller connection to the shaft

– examination and overhaul of the oil sealing glands according to manufacturer's instructions (sealing rings, liners, etc.)

– examination of the bearing clearances and/or wear down of the shaft with recording of the values measured

– examination of the lubricating oil analysis and consumption to be within permissible limits

– for keyed propellers, performing a non-destructive examination by an approved crack-detection method of about one third of the length of the taper from the large end, for which dismantling of the propeller is required, exami-nation of the propeller fit

Where doubts exist regarding the findings, the shaft is to be further dismantled, respectively drawn.

10.3.4 Survey without exposing the aft bearing contact area of the shaft

Where the prerequisites as defined in 9.3.2 apply, the scope of the modified survey without exposing the aft bearing contact area of the shaft consists in the following:

– examination and overhaul of the oil sealing glands according to manufacturer's instructions (sealing rings, liners, etc.)

– examination of the bearing clearances and/or wear down of the shaft with recording of the values measured

– for keyed propellers, performing a non-destructive examination by an approved crack-detection method of about one third of the length of the taper from the large end, for which dismantling of the propeller is required, exami-nation of the propeller fit

In addition to this, the survey shall include the following:

– examination of the records of all regularly car-ried out lubricating oil analyses

– examination of the records of the oil consump-tion

Where doubts exist regarding the findings, the shaft is to be further dismantled, respectively drawn.

10.4 Propellers

10.4.1 Propellers are to be examined visually on the occasion of each propeller shaft or tube shaft survey.

10.4.2 Damages, such as cracks, deformation, cavitation effects, etc. are to be reported and repaired at the Surveyor's discretion.

Controllable pitch propellers are to be checked for oil leakages. The function of the controllable pitch propellers has to be tested. The maintenance according to manufacturer's instructions has to be checked.

10.5 Other systems

As far as practicable, the gearing and control elements of rudder and steering propellers are to be examined through inspection openings. For other systems such as pod propulsion systems, pump jet units, etc., if applicable, the scope of survey is to be agreed with APC's concerned departments. In any cases, a survey has to be carried out during Class Renewal Survey. The maintenance according to manufacturer's instructions is to be checked. A function test is to be carried out.

11. Inert gas systems

11.1 General

Inert gas installations of the cargo tank area of tankers are to be checked as to their operability in accordance with APC's survey programme, at intervals of nominally 2,5 years, preferably on the occasion of each Class Renewal and intermediate survey.

12. Bottom surveys

For bottom surveys, see E.

13. Installations under pressure

For steam boiler installations, thermal oil plants and pressure vessels, see F.

D. Non-Periodical Surveys

1. Damage and repair surveys

Damage and repair surveys fall due whenever the vessel's hull and machinery, including electrical installations, as well as special equipment and installations covered by the Classification have suffered a damage which might affect validity of Class, or if damage may be assumed to have occurred as a consequence of an average or some other unusual event, see also Sec-tion 1, B.6.3.2.

1.1 Damage and repair surveys performance

1.1.1 Where damage has occurred to the vessel's hull, machinery including electrical installations or special equipment and installations, the automatic/ remote-control systems, etc., the damaged parts are to be made accessible for inspection in such a way that the kind and extent of the damage can be thoroughly examined and ascertained, see also Section 1, B.6.3.2.

In the case of grounding, dry docking or, alternatively, an in-water survey is required.

1.1.2 The repair measures are to be agreed with the Surveyor such as to render possible confirmation of the Class without reservations upon completion of the repairs. In general, a Class confirmation with conditions of Class, e. g. in the case of a preliminary repair ("emergency repair"), requires to be approved by APC's Head Office or APC's representative.

1.1.3 Surveys conducted in the course of repairs are to be based on the latest experience and instructions by APC. In exceptional cases advice is to be obtained from APC's Head Office or Society's representa-tive, in particular where doubts exist as to the cause of damage.

1.1.4 For older vessels, in the case of repairs and/or replacement of parts subject to Classification, as a matter of principle, the construction Rules in force during their period of construction continue to be applicable.

This does not apply in the case of modifications required to the structure in the light of new knowledge gained from damage analyses, with a view to avoiding recurrence of similar damages.

1.1.5 Regarding the materials employed and certificates required, the requirements for newbuildings are applicable. See Section 1, B.6.4.

1.1.6 Regarding corrosion damages or excessive wastage beyond allowable limits that affect the vessel's Class, see G.

2. Voyage repairs and maintenance

Where repairs to hull, machinery or equipment, which affect or may affect Class are to be carried out by a riding crew during a voyage, a complete procedure is to be submitted to and agreed upon with APC.

Maintenance and overhaul to hull, machinery, as well as special equipment and installations in accordance with the recommended manufacturer's procedures and established practice and which does not require Society approval, are not included. However, any repair as a result of such maintenance and overhauls which affects or may affect Class is to be noted in the vessel's log and submitted to the attending Surveyor for use in determining further survey requirements.

3. Conversion surveys

In case of conversion and/or major changes of the vessel's hull, machinery, as well as special equipment and installations with effect to the Class designation including Notations, APC’s approval is to be requested as in the case of newbuildings and surveys are to be carried out, as described in Section 1, B.6.4.

A new or amended Class designation will be assigned, where necessary.

4. Extraordinary surveys

APC reserves the right to require extraordinary surveys to be held independently of any regular surveys. Such surveys may become necessary for examining the vessel's technical condition and are understood to be a part of APC's quality assurance system.

5. Survey for towage or voyage over sea

In compliance with the provisions of the General Terms and Conditions, a certificate of towage or voyage over sea may be issued upon satisfactory survey the scope of which is fixed in each particular case by APC according to the towing or voyage over sea.

E. Bottom Surveys

1. Dry dock surveys

1.1 Inland navigation vessels are generally to be subjected to a bottom survey once during the Class period. As a matter of principle, Class Renewal includes a bottom survey in dry-dock.

1.2 Intermediate surveys have to be carried out in drydock in the following cases:

– the vessel's shell is riveted, at the Surveyor's discretion

– the vessel's age exceeds 20 years, at the Sur-veyor's discretion

– the vessel's age exceeds 20 years and the service notation granted is tanker for transport of dan-gerous goods

– the vessel is granted with the navigation range **IN(x),** 1,2 ≤ · ≤ 2, when it sails regularly in salt or brackish waters

Moreover, for each bottom survey performed in addition to the bottom surveys stipulated by the Classification requirements a APC's Surveyor shall be called to attend.

1.3 Performance of dry dock surveys

1.3.1 General

For the survey, the vessel is to be placed on sufficiently high and secure blocks, so that all necessary examinations can be carried out in a satisfactory manner. It may be necessary to clean the bottom and outer shell and/or remove rust from some areas to the Surveyor’s satisfaction.

1.3.2 Hull bottom survey

The survey covers an examination of the bottom and side plates of the shell plating, including any attachments, the rudder, the scuppers and water drain pipes, including their closures.

1.3.3 Steering gear

The rudder, rudder couplings and bearings, as well as stocks and pintles, are to be surveyed in place, the rudder clearance is to be measured and documented. The steering gear is to be subjected to an operational trial.

If considered necessary in view of the inspection results, the rudder or parts of the steering gear will have to be dismantled.

Bow thrusters are normally to be inspected in place.

1.3.4 Machinery and propulsion systems

For propeller(s), propeller shaft(s), stern tube(s), see C.9.

River inlet and discharge valves - including those of special equipment, if any - are to be checked as to their condition during each dry docking survey and to be opened up and overhauled once within a period of Class.

2. In-water surveys

2.1 General

In particular circumstances, in-water survey, the ex-tent of which is subject to preliminary agreement of APC, may be performed under the following conditions.

2.2 Approval

The diving firm assisting in in-water surveys shall be approved by APC for this purpose according APC's pro-cedures.

2.3 Performance of survey

2.3.1 Unless accessible from outside with the aid of the vessel's trim and/or heel, underwater parts are to be surveyed and/or relevant maintenance work is to be carried out with assistance by a diver whose perform-ance is controlled by a Surveyor, using an underwater camera with monitor, communication and recording systems.

2.3.2 Surveys of the underwater body are to be carried out in sufficiently clear and calm waters.

The vessel should be in light vessel condition.

The shell sides below the waterline and the bottom shall be free from fouling.

2.3.3 The underwater pictures on the surface moni-tor screen shall offer reliable technical information such as to enable the Surveyor to judge the parts and/ or the areas surveyed.

2.3.4 Documentation suited for video reproduction including voice is to be made available to APC.

2.4 Additional examinations

Where, for instance, grounding is assumed to have taken place, the Surveyor may demand individual parts of the underwater body to be additionally in-spected from inside.

If during the in-water survey damages are found which can be assessed reliably only in dry-dock or require immediate repair, the vessel is to be dry docked. If the coating of the underwater body is in a condition which may cause corrosion damages affect-ing vessel's Class to occur before the next dry dock-ing, the vessel is to be dry docked.

F. Installations under Pressure

1. Steam boiler installations

1.1 General

Auxiliary steam generators/boilers, external and internal inspections are to be carried out at Intermediate Survey and at Class Renewal Survey.

1.2 External inspection performance

1.2.1 The operability and general condition of the entire boiler, including its valves and fittings, pumps, piping, insulation, foundation, control and regulating systems and its protective and safety equipment, are to be examined.

Note

More extensive Regulations of the country, where the vessel is registered, are to be observed.

1.2.2 In detail, the following items are to be examined:

– the entire steam boiler plant for leakages

the condition of the insulation

– the functioning of the indication, control and safety equipment

– the remote controls for the shut-off and dis-charge valves

the leakage monitors for the heaters

– the emergency switch-off devices (oil firing, pumps)

the safety switch-off devices for the oil burner

lighting, emergency lighting and labelling

1.3 Internal inspection performance

1.3.1 Where deemed necessary by the Surveyor, the boiler is to be cleaned on the water and flue gas sides and, if required, its outside surfaces are to be uncovered as well, so that all walls subject to pressure may be examined.

1.3.2 Where the design of the boiler does not permit an adequate internal inspection, hydraulic tests may be required. It is left to the Surveyor's discretion to have the internal inspection supplemented by hydraulic tests, if considered necessary on account of the general condition/ appearance of the boiler.

1.3.3 Where there are doubts concerning the thickness, the hydraulic pressure test is to be carried out to a test pressure of 1,3 times the allowable working pressure. Only after repairs of major damages the test pressure shall be 1,5 times the allowable working pressure. If the maximum allowable working pressure is less than 2 bar, the test pressure shall be at least 1 bar above the maximum allowable working pressure. In no case the test pressure should exceed the test pressure applied during the first inspection of the boiler after completion.

1.3.4 Steam pipes and heating coils shall be exam-ined according to agreed procedures.

1.4 Non periodical inspection

Beyond the above periodical inspections, the Surveyor may require hydraulic tests or extraordinary inspections to be performed on other occasions, e.g. following repairs and maintenance work.

2. Thermal oil plants

2.1 General

2.1.1 Thermal oil plants are subject to periodical surveys. Thermal oil plants are to be subjected to external inspection and functional tests while in operation. At the Class Intermediate and Renewal Surveys proof of continued usability of the thermal oil made by a competent testing institution, shall be furnished.

2.1.2 Tightness and pressure test

Tightness and pressure test of the whole plant to the admissible working pressure is to be performed at intervals of p years, counting from commencement of initial operation and possibly in connection with a Class Renewal Survey. Following repairs and renewals of plant components exposed to pressure, a pressure test is to be carried out to 1,5 times the admissible working pressure.

2.2 Internal inspection performance

During the internal inspection every p years the heating surfaces and, where appropriate, the combustion chamber, are to be examined for contamination, corrosion, deformations and leakages.

2.3 External inspection performance

For external inspection performance, the following

ness of the boiler walls, measurements shall be made using a recognised gauging method. Depending on the results, the allowable working pressure for future operation is to be determined.

items are to be examined in detail:

the entire thermal oil plant for leakages

the condition of the insulation

– the functioning of the indication, control and safety equipment

– the remote controls for the shut-off and dis-charge valves

the leakage monitors for the heaters

– the emergency switch-off devices (oil firing, pumps)

the safety switch-off devices for the oil burner

lighting, emergency lighting and labelling

Reference is to be made to the test reports on the annual checks to be performed by an appropriate testing institution for continued usability of the thermal oil. This is to be confirmed in the report.

Note

More extensive Regulations of the country, where the vessel is registered, are to be observed.

3. Pressure vessels

3.1 General

3.1.1 Pressure vessels are to be inspected internally and externally every p years, possibly in connection with Class Renewal Survey.

Pressure vessels for which pressure [bar] times cubic capacity [l] is less than or equal to 200 are to be surveyed on the occasion of checking of the pertinent piping system.

3.1.2 Where pressure vessels cannot be satisfacto-rily examined internally and where their unobjection-able condition cannot be clearly stated during the internal inspection, approved non-destructive test methods and/or hydraulic pressure tests are to be car-ried out. The hydraulic pressure test is to be performed at a test pressure of 1,5 times the maximum allowable working pressure. If the maximum allowable working pressure is less than 2 bar, then the test pressure should be at least 1 bar more than the maximum al-lowable working pressure. Pressure vessels manufac-tured in accordance with non-Class standards are to be tested according to that standards.

The test pressure shall in no case exceed the initial test pressure

3.1.3 Pressure vessels survey performance

Pressure vessels which are subject to survey by APC according to the construction Rules, are to be examined internally and externally every p years, possibly in connection with a Class Renewal Survey.

CO_2 cylinders and other gas cylinders for fire-

extinguishing purposes including vessels for powder extinguishers are to be submitted to periodical survey according manufacturer instructions or applicable Standards. Reports relative to these surveys carried out by recognised company have to be submitted to the surveyor.

Receivers in hydraulic or pneumatic control systems are to be examined during maintenance and repairs at the system; air receivers with a product of pressure by cubic capacity:

$p \cdot l \geq 1000$ (p in bar, l in litre)

are to be subjected to an internal inspection at least once during each Class renewal.

The intervals between surveys as referred to may be reduced, depending on the findings.

G. Performance and Scope of Thickness Measurements

1. Objectives of thickness measurements

1.1 General

1.1.1 Thickness measurements are a major part of surveys to be carried out for the maintenance of Class, and the analysis of these measurements is a prominent factor in the determination and extent of the repairs and renewals of the vessel's structure.

1.1.2 The corrosion and wear tolerances stipulate limits of wastage which are to be taken into account for reinforcements, repairs or renewals of steel structure. They are classified and determined by APC, depending on the local conditions of the structural elements into:

– criteria on longitudinal and buckling strength

criteria on local strength and pitting

Each measured structural item is to be checked against these criteria, as far as applicable. When the criteria are not met, reinforcements, repairs and renewals are to be carried out as appropriate.

1.1.3 The thickness of structural elements is checked by measurements, in order to assess whether or not the values stipulated in the construction Rules are kept, taking into account the admissible corrosion tolerances. Unless severe corrosion has occurred owing to particular service conditions, thickness measurements will not be required until Class Renewal II, see Table 3.1 and Table 3.2.

1.1.4 Thickness measurements are to be carried out in accordance with recognized methods and by authorized personnel or companies.

Note

The specific guidelines of APC give details about the scope of authorization.

1.1.5 Rust and contamination are to be removed from the components to be examined. The Surveyor is entitled to require check measurements or more detailed measurements to be performed in his presence. The thickness measurements are to be witnessed by the Surveyor on board to the extent necessary to control the process.

1.1.6 The scope of thickness measurement as well as the reporting shall be fixed in a survey planning meeting between the Surveyor, representatives of the vessel's Owners and the approved thickness measurement operator/firm well in advance of measurements and prior to commencing the survey.

1.1.7 Thickness measurements of structures in areas where close-up surveys are required shall be carried out simultaneously with the close-up survey.

2. Definitions

2.1 Ballast tank

A ballast tank is a tank that is being primarily used for water ballast. A tank which is used for both cargo and water ballast will be treated as a ballast tank when substantial corrosion has been found in such tank, see 2.8.1.

2.2 Spaces

Spaces are separate compartments such as holds and tanks.

2.3 Overall survey

An overall survey is a survey intended to report on the overall condition of the hull structure and determine the extent of additional close-up surveys.

2.4 Close-up survey

A close-up survey is a survey where the details of structural components are within the close visual inspection range of the Surveyor, i.e. normally within reach of hand.

2.5 Transverse section

A transverse section includes all longitudinal members contributing to longitudinal hull girder strength, such as plating, longitudinals and girders at the deck, side shell, bottom, inner bottom, longitudinal bulkheads, and plating in side tanks, as well as relevant longitudinals, as applicable for the different vessels. For a transversely framed vessel, a transverse section includes adjacent frames and their end connections in way of transverse sections.

2.6 Representative tanks or spaces

Representative tanks or spaces are those which are expected to reflect the condition of other tanks or spaces of similar type and service and with similar corrosion protection systems. When selecting representative tanks or spaces, account should be taken of the service and repair history on board and identifiable suspect areas.

2.7 Critical structural area

Critical structural areas are locations which have been identified from calculations to require monitoring or from the service history of the subject vessel or from similar vessels or sister ships, if applicable, to be sen-

sitive to cracking, buckling or corrosion which would impair the structural integrity of the vessel.

2.8 Substantial corrosion

Substantial corrosion is an extent of corrosion such that assessment of the corrosion pattern indicates a wastage in excess of 75 % of allowable margins, but within acceptable limits.

2.9 Suspect areas

Suspect areas are locations showing substantial corrosion and/or considered by the Surveyor to be prone to rapid wastage.

2.10 Coating condition

Coating condition is defined as follows:

good: condition with only minor spot rusting

– fair: condition with local breakdown at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consid-eration, but less than as defined for poor condi-tion

– poor: condition with general breakdown of coat-ing over 20% or more of areas or hard scale at 10% or more of areas under consideration

2.11 Cargo area for vessels carrying liquid cargo in bulk

The cargo area is that part of the vessel which contains cargo tanks, slop tanks and cargo/ballast pump rooms, cofferdams, ballast tanks and void spaces adjacent to cargo tanks and also deck areas throughout the entire length and breadth of the part of the vessel over the above-mentioned spaces.

2.12 Cargo area for dry cargo vessels

The cargo area is that part of the vessel which includes all cargo holds and adjacent areas including fuel tanks, cofferdams, ballast tanks and void spaces.

3. Scope and extent of measurements for Class Renewal Survey

3.1 General

The thickness measurements required by the Rules consist of:

– systematic thickness measurements, i.e. measurements of different parts of the structure in or-der to assess the overall and local strength of the vessel

– measurements of suspect areas as defined in 2.9

– additional measurements on areas determined as affected by substantial corrosion as defined in 2.8

3.2 Main hull structural elements

As applicable, in Class Renewal II and all subsequent ones, the plate thickness of the main and essential longitudinal and transverse structural hull elements are to be checked by thickness measurements. The num-ber of measurements depends on the vessel's mainte-nance condition and is left to the Surveyor's discre-tion. The minimum requirements for thickness meas-urements on the occasion of Class Renewal Surveys are stated in Table 3.1 and Table 3.2, depending on the vessel's Class Renewal Survey number. Respective thickness measurements to determine the general level of corrosion are to be carried out.

3.3 Reduction of thickness measurement scope

The extent of thickness measurements may be reduced, in comparison with those stated in Table 3.1 and Table 3.2, provided during the close-up examination the Surveyor satisfies himself that there is no structural diminution and the protective coating, where applied, continues to be effective. When the structure is coated and the coating is found to be in good condition, as defined in 2.10, the Surveyor may, at his discretion, accept a reduced program of thickness measurements in the corresponding areas. Other effective protective arrangements may also be considered. The requirements for close-up survey of tank vessels are stated in Table 3.3.

3.4 Extension of thickness measurement scope

The Surveyor may extend the scope of the thickness measurement as deemed necessary. This applies especially to areas with substantial corrosion. When thickness measurements indicate substantial corrosion, as defined in 2.8 the number of thickness measurements is to be increased to determine the extent of substantial corrosion.

Table 3.1 Requirements for thickness measurements at Class Renewal Survey General cargo vessels and other vessels

Class renewal survey number			
Class renewal I	**Class renewal II**	**Class renewal III**	**Class renewal IV and subsequent**
Suspect areas	**Suspect areas**	**Suspect areas**	**Suspect areas**
	Within the cargo length area or 0,5·L amidships: selected deck plates one transverse section selected bottom/inner bottom plates selected side shell plates selected hatch covers and coamings [1]	Within the cargo length area or 0,5·L amidships: each exposed deck plate two transverse sections selected tank top plates each bottom/inner bottom plates all side shell plates selected transverse and longitudinal cargo hold bulkheads [1] all hatch covers and coamings [1]	Within the cargo length area or 0,5·L amidships: each deck plate three transverse sections [3] each bottom/inner bottom/tank top plate all side shell plates all transverse and longitudinal cargo hold bulkheads [1] all hatch covers and coamings [1]
		Outside the cargo length area: selected deck plates selected side shell plates selected bottom plates	Outside the cargo length area: each deck plate each side shell plate each bottom plate
	Collision bulkhead, forward machinery space bulkhead, aft peak bulkhead [1, 2]		All transverse and longitudinal bulkheads outside cargo hold area [1, 2]
	In engine room [2] river chests river water manifold duct keel or pipe tunnel plating and internals		
		Selected internal structure such as ballast tank, floors and longitudinals, transverse frames, web frames, deck beams, girders, etc. Measurements may be increased if the Surveyor deems it necessary	

[1] Including plates and stiffeners.

[2] Measurements may be waived or reduced after satisfactory visual examination, when such bulkheads form the boundaries of dry void spaces or river chests, etc. are found in good condition.

[3] The number of transverse sections may be reduced at the Surveyor’s discretion for vessels of length under 40 m.

Table 3.2 Requirements for thickness measurements at Class Renewal Survey
Tank vessels

Class Renewal Survey number			
Class Renewal I	**Class Renewal II**	**Class Renewal III**	**Class Renewal IV and subsequent**
Suspect areas	**Suspect areas**	**Suspect areas**	**Suspect areas**
	Measurement for general assessment and recording of corrosion pattern of those structural members subject to close-up survey according to Table 3.3		
	Within the cargo length area: selected deck plates one transverse section selected bottom/inner bottom plates selected side shell plates selected hatch covers and coamings [1]	Within the cargo length area: each deck plate two transverse sections in two different tanks each bottom/inner bottom plate all side shell plates selected transverse and longitudinal cargo tank bulkheads [1] all hatch covers and coamings [1]	Within the cargo length area: each deck plate three transverse sections in three different tanks [3] each bottom/inner bottom plate all side shell plates all transverse and longitudinal cargo tank bulkheads [1] all hatch covers and coamings [1]
		Outside the cargo length area: selected deck plates selected side shell plates selected bottom plates	Outside the cargo length area: each deck plate each side shell plate each bottom plate
	Collision bulkhead, forward machinery space bulkhead, aft peak bulkhead [1, 2]		All transverse and longitudinal bulkheads outside cargo length area [1, 2]
	In engine room [2] river chests river water manifold duct keel or pipe tunnel plating and internals		
		Selected internal structure such as ballast tanks, floors and longitudinals, transverse frames, web frames, deck beams, girders, etc. Measurements may be increased if the Surveyor deems it necessary	

[1] Including plates and stiffeners.

[2] Measurements may be waived or reduced after satisfactory visual examination, when such bulkheads form the boundaries of dry void spaces or river chests, etc. are found in good condition.

[3] The number of transverse sections may be reduced at the Surveyor's discretion for vessels of length under 40 m.

3.5 Transverse sections

Transverse sections shall be chosen where largest corrosion rates are suspected to occur or are revealed by deck plating measurements.

3.6 Ballast tanks

If applicable, in the case of major corrosion damages, the structural elements of ballast tanks are to be checked by thickness measurements.

3.7 Substantial corrosion and suspect areas

Where special reasons exist, the Surveyor may demand thickness measurements to be carried out already on the occasion of Class Renewal I, also outside the area of 0,5 L amidships. The same applies in the case of conversion or repair of a vessel.

3.8 Hull equipment

In Class Renewal II and all subsequent Class renewals the cross sectional areas of the anchor chain cables are to be determined. The mean diameters of the anchor chain cables are to be determined by representative measurements, approximatively 3 links per length of 27,5 m, made at the ends of the links where the wear is the greatest. The weights of the anchors are to be checked in Class Renewal III and all subsequent Class renewals. For permissible tolerances see 4.4.

4. Corrosion and wear tolerances

4.1 General

Where thickness measurements result in corrosion and wear values exceeding those stated in the following, the respective hull structural elements will have to be renewed.

Table 3.3 Requirements for Close-up Survey at Class Renewal Survey of Tank vessels

Class Renewal Survey number			
Class Renewal I	**Class Renewal II**	**Class Renewal III**	**Class Renewal IV and subsequent**
	Within the cargo length area: selected deck plates in one tank for survey from inside of the tank selected deck longitunals/brackets in one tank [1] one transverse section selected in one representative cargo tank	Within the cargo length area: selected deck plates in two tanks for survey from inside of the tank selected deck longitunals/brackets in two tanks [1] selected bulkheads for survey of upper and lower parts [1] two transverse sections selected in two representative cargo tank selected plates and stiffeners in one representative ballast tank	Within the cargo length area: selected deck plates in four tanks for survey from inside of the tank selected deck longitunals/brackets in four tanks [1] all bulkheads for survey of upper and lower parts [1] three transverse sections selected in three representative cargo tanks, including all transverse sections in one representative cargo tank [2] selected plates and stiffeners in all ballast tanks

1 Including plates and stiffeners.

2 The number of transverse sections may be reduced at the Surveyor's discretion for vessels of length under 40 m.

4.2 Longitudinal and buckling strength

In general, the applicable criteria on longitudinal and buckling strength will be decided by APC, if needed, on a case by case basis.

4.3 Local strength and pitting

4.3.1 The following apply to vessels classed on the basis of these Rules.

4.3.2 Where applicable, the maximum permissible largesurface reduction of plate thickness and web thickness of profiles should not exceed the values of corrosion additions as stipulated in APC Rules for Hull Design and Construction (I-2-2), Section 2, B.7.1.2 for steel and Section 2, B.7.1.3 for stainless steel or alu-minium alloys.

4.3.3 Beyond the calculated corrosion additions t_C, and at the Surveyor's discretion, a maximum permissible locally limited reduction of thickness for isolated pits of 0,35, respectively of 0,2 times the as-built thickness for 50% scattered pits, may be accepted.

4.4 Anchor equipment

Maximum permissible reduction of the mean diameter of chain links: 12 %.

Maximum permissible reduction in weight of anchors: 10 %.

5. Reporting

5.1 General

Appropriate reporting forms recommended by APC are to be used for recording thickness measurements.

The report is to provide the name of the vessel, the location of measurement, the thickness measured and the corresponding original thickness. Furthermore, the report is to include the date when the measurements were carried out, the type of measuring equipment, the names and the qualification of the operator and his signature.

The single measurement recorded is to represent the average of multiple measurements.

The report shall be verified and validated by the Surveyor.