



# IRS

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## **RULES FOR BUILDING AND CLASSING STEEL VESSELS**

**PART 9 : VESSELS FOR TRADE IN INLAND WATERWAYS**  
**A : CLASSIFICATION AND SURVEYS**

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**INTERNATIONAL REGISTER OF SHIPPING**  
Technical Appraisal Department  
4770 Biscayne Boulevard  
Suite 800  
Miami, Florida 33137, USA

## CHANGES

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## CONTENTS

<b>CHAPTER 1 GENERAL .....</b>	<b>4</b>
SECTION 1 GENERAL .....	5
SECTION 2 ASSIGNMENT OF CLASS.....	14
SECTION 3 SUSPENSION AND WITHDRAWAL OF CLASS .....	21
SECTION 4 CLASSIFICATION PROCEDURES .....	26
<b>CHAPTER 2 CLASS DESIGNATION.....</b>	<b>33</b>
SECTION 1 GENERAL .....	34
SECTION 2 CLASSIFICATION NOTATIONS.....	37
<b>CHAPTER 3 SURVEY .....</b>	<b>51</b>
SECTION 1 GENERAL .....	52
SECTION 2 INTERMEDIATE SURVEYS .....	58
SECTION 3 CLASS RENEWAL SURVEYS .....	64
SECTION 4 NON-PERIODICAL SURVEYS .....	78
SECTION 5 BOTTOM SURVEYS.....	81
SECTION 6 INSTALLATION UNDER PRESSURE .....	84
SECTION 7 PERFORMANCE AND SCOPE OF THICKNESS .....	88

## CHAPTER 1 GENERAL

### CONTENTS

SECTION 1 GENERAL .....	5
SECTION 2 ASSIGNMENT OF CLASS .....	14
SECTION 3 SUSPENSION AND WITHDRAWAL OF CLASS .....	21
SECTION 4 CLASSIFICATION PROCEDURES .....	26

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## SECTION 1 GENERAL

### Contents

1.1. Scope, prerequisites .....	6
1.2. Application .....	10
1.3. Rules, Guidelines and Regulations .....	12

**1.1. Scope, prerequisites**

1.1.1. Purpose of Rules

1.1.1.1. The Rules for Classification and surveys of inland navigation vessels comprise the Classification of inland navigation vessels as defined in [1.1.2.1]

1.1.1.2. The Rules published by IRS give the necessary requirements for the assignment and the maintenance of Class for inland navigation vessels.

1.1.1.3. Class assigned to a vessel reflects the discretionary opinion of IRS that the vessel, for declared conditions of use and within the relevant time frame, follows with the Rules applicable at the time the service is rendered.

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

1.1.2. General definitions

The following general definitions are used in these Rules.

1.1.2.1. IRS Head Office

IRS Head Office refers to the head office or selected head office department in charge of dealing with Rules and Classification particulars.

1.1.2.2. Rules

These refer to Rules for the Classification of inland navigation vessels and the documents issued by IRS meant for serving the same purpose.

1.1.2.3. Inland navigation vessel

A vessel designed and operated for inland navigation and related activities.

1.1.2.4. Classification: Classification means essentially

Review/approval of design documents, construction plans and specifications of material in comparison with the applicable Rules, Guidelines or other applicable Rules of IRS.

1.1.2.5. Supervision of construction of new buildings or conversions

Supervision of in service vessels by surveys required by IRS's Rules in order to ascertain that a condition is maintained which conform to Class requirements.

1.1.2.6. Class designation

The Class designation consists of:

- The Character of Classification that is a string of abbreviations exhibiting the extent of compliance 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, signifying particular features capability, service restrictions

or special equipment and installations, which are included in the Classification.

1.1.2.7. Period of Class

Period of Class means the time starting either from the date of the initial Classification or from the credited date of the last Class Renewal Survey, and expiring at the limit date assigned for the next Class Renewal Survey.

1.1.2.8. Surveyor

Surveyor refers to technical staff working on behalf of IRS to perform tasks in relation to Classification and survey duties.

1.1.2.9. Survey

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

1.1.2.10. Administration / Authorities

Administration/Authorities refer to 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.

1.1.2.11. Statutory Rules

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

1.1.2.12. IRS's contractual partner

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

1.1.2.13. Owner

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

1.1.2.14. Review/Approval

Review/Approval refers to the examination and acceptance by IRS of documents, procedures or other items related to Classification, validating solely their compliance with the relevant Rules requirements, or other referential where requested.

1.1.2.15. Type approval

Type approval refers to a process for approval for verifying compliance with the Rules of a product, a group of products or a system, and considered as representative of continuous production by IRS

1.1.2.16. Building Yard

The Building Yard is the contractual partner of IRS ordering the new building classification.

1.1.2.17. Building specification

The building specification is part of the building contract between the Prospective vessel Owner and the Building Yard which spell out the technical parameters and all other details for the construction of the vessel.

1.1.2.18. Classification specification

The Classification specification is part of the Classification contract between the Building Yard and IRS during construction and between the vessel Owner and IRS 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.

1.1.2.19. Sister vessel

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

1.1.2.20. Memoranda

Any information reckoned noteworthy for IRS's convenience 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.

1.1.3. Meaning of Classification and limits

The following shall apply unless otherwise specified.

1.1.3.1. The date on which the contract to build the vessel is signed between the Prospective vessel Owner and the Building Yard is referred to as date of "contract for construction" of a vessel. Usually this date is to be declared to IRS by the ordering client applying for the assignment of Class to a new building, see also IV.

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

- At a time when a justified written request is got from the party applying for Classification
- When more than one year has passed from the time when the contract was signed and the keel is not yet laid
- Where it is meant to use existing earlier approved plans for a new contract

Requests for interventions by IRS, like 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 suggests that the applicant will follow all the pertinent requirements of the Rules and the General Terms and Conditions of IRS.

- 1.1.3.2. The date of "contract for construction" of a series of sister vessels, including particular optional vessels for which the option is finally 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.
- 1.1.3.3. In case a contract for construction is amended afterward 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 [1.1.3.2] and [1.1.3.3] apply.
- 1.1.3.4. 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.
- 1.1.3.5. The Rules, surveys performed, reports, Certificates and other documents issued by IRS, are in no way meant to replace or alleviate the duties and responsibilities of other parties, such as Administrations, Building Yard, Manufacturers, Designers, Repairers, Suppliers, Contractors or Subcontractors, actual or Prospective Owners or Operators, Charterers, Underwriters, Brokers and Cargo Owners. IRS therefore cannot presume the obligations arising from these functions, even when IRS is consulted to answer inquiries concerning matters not covered by its Rules, or other documents.
- 1.1.3.6. 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.
- 1.1.3.7. Classification-related services and documents performed and issued by IRS 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 IRS with regard to such responsibilities, obligations and liabilities. In particular, IRS does not declare the acceptance or commissioning of a vessel or any part of it, this being the exclusive responsibility of the Owner.
- 1.1.3.8. The Rules do not deal with structures, pressure vessels, machinery and equipment unless otherwise specified, 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 [1.1.3.2] as regards the Owner's responsibility for maintenance and operation of the vessel in relation to the maintenance of Class

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

1.1.3.10. In any case the General Terms and Conditions of IRS shall be observed.

**1.1.4. Scope of Classification**

1.1.4.1. The vessel's hull and machinery together with electrical installations as well as special equipment and installations as far as agreed in the respective classification contract will be covered under classification. The main aim of Classification is to ascertain the reliability of the hull structure and machinery systems on board resulting in a sufficient level of safety of personnel and environmental protection. However, Classification is not intended to make certain the effectiveness of the intended missions.

1.1.4.2. Structures, machinery and equipment that determine 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 IRS's contractual partner and the Building Yard.

1.1.4.3. 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 be normally established or confirmed by means of a certified quality assurance management system in accordance with ISO 9000, or equivalent.

**1.1.5. Statutory Rules and Regulations**

1.1.5.1. 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 IRS's Rules. (See also 1.2.4.1 of this chapter).

**1.2. Application**

**1.2.1. General**

1.2.1.1. These Rules apply to all inland navigation vessels meant for inland navigation activities.

1.2.1.2. According to these Rules Classification primarily applies to new buildings constructed under surveillance of IRS. Classification may also be applied to existing vessels by a survey for Admission to Class/Classification after construction, if adequate documentation is available, [see Section 4, 4.1.2 of this chapter.]

**1.2.2. Interpretation**

1.2.2.1. IRS 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 IRS.

1.2.3. Disagreement and appeal

1.2.3.1. Any technical difference with the Surveyor in connection with the performance of his duties should be raised by IRS's contractual partner as soon as possible.

1.2.3.2. IRS's contractual partner may appeal in writing to IRS HO, who will then consider the matter and announce its decision as per its established procedure.

1.2.4. **Duties of IRS's contractual partner**

1.2.4.1. International and national Regulations

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

When authorized by the Administration concerned, IRS will act on its behalf within the limits of such authorization. In this respect IRS will take into account the pertinent 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 in tandem 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, IRS reserves the right to call for the necessary adaptation to preserve the intention of the Rules.

1.2.4.2. Surveyor's intervention

At all times Surveyors are to be given free access 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 IRS within the scope of the audits as required in pursuance of IRS's internal Quality System or as required by external organizations.

For the Surveyor's inspections and testing to be carried out safely Owners and Building Yard are to take the required measures. Owners and Building Yard - irrespective of the nature of the service provided by the Surveyors of IRS 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, during surveys the Surveyor is to be constantly accompanied by personnel of the Owner or Building Yards.

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

Due consideration should be given During the phases of design and construction of the vessel, 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 IRS.

**1.3. Rules, Guidelines and Regulations**

1.3.1. Rules

1.3.1.1. IRS's Rules for the Classification of inland navigation vessels (see Table 1.1.1) will be applied for structural elements of the hull and for components of the machinery and electrical installations of inland navigation vessels, subject to agreement between the Prospective vessel Owner and the Building Yard for the Classification order to IRS.

**Table1. 1.1. Rules for the Classification of inland navigation vessels**

<b>Part</b>	<b>Title</b>
A	Classification and Surveys
B	Hull Design and Construction
C	Machinery and Piping
D	Electrical navigation and communication

1.3.1.2. Other IRS's Rules may be used at IRS's judgment when applicable for inland navigation vessels.

1.3.1.3. Vessels, not in conformity with [1.3.1.1] and [1.3.1.2] may be classed, only if their structural elements or any installations are found to be equivalent for the respective Character of Classification including Class Notations regarding design, function and structural safety of the vessel.

1.3.2. Other construction Rules and Regulations

1.3.2.1. The appraisal of design and construction particulars by IRS will be solely based on Rules and Guidelines, agreed upon in the specification of the Classification contract between the Prospective vessels Owner or the Building Yard and IRS.

1.3.2.2. In addition, statutory construction Rules for inland navigation vessels, 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 IRS.

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

1.3.2.4. 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.

1.3.3. Industry Codes, Standards, etc.

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

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

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## SECTION 2 ASSIGNMENT OF CLASS

### Contents

2.1.	General.....	15
2.2.	New building procedure .....	15
2.3.	Vessels under construction .....	16
2.4.	Vessels classed after construction.....	16
2.5.	Date of Classification - definitions.....	17
2.6.	Period and validity of Class.....	18

## 2.1. General

Upon a survey, class is allocated to a vessel with the associated operations, in order to confirm whether it is eligible to be classed on the basis of the IRS Rules, [see section 1, 1.3.]

This may be achieved through:

- The conclusion of a new building, during which a survey has been performed.
- A survey when the vessel changes Class between recognized Classification Societies, or.
- In cases where a vessel is classed with a non-recognized Classification Society or is not classed at all a specific Admission to Class Survey.

## 2.2. New building procedure

### 2.2.1. Vessel surveyed by IRS during construction

2.2.1.1. During construction when a vessel is surveyed by IRS, it is to conform to those requirements of the Rules which are in applicable and in force depending on the Class of the vessel, taking into account the provisions of Section 1, [1.2.1] of this chapter.

#### 2.2.1.2. IRS:

- Carries out surveys or obtains proper evidence to please itself that the scantlings and construction meet the Rule requirements in relation to the reviewed/approved drawings.
- Reviews/approves the plans and documentation submitted as required by the Rules.
- Attends tests and trials presented for in the Rules.
- If required proceeds with the appraisal of the design of materials and equipment used in the construction of the vessel and their inspection at works.
- Assigns the Character of Classification, refer to Chapter 2.
- IRS 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.

2.2.1.3. The Surveyor will as part of his interventions during the vessel's construction:

- Examine methods and procedures of construction when required by the Rules.
- Conduct an overall examination of the parts of the vessel covered by the Rules.
- Attend tests and trials where applicable and considered necessary.
- Check selected items covered by the Rule requirements.

### 2.2.2. Use of materials, machinery, appliances and items

2.2.2.1. All materials, machinery, boilers, auxiliary installations, equipment, items etc. Which are covered by the class and used or fitted on board vessels surveyed by IRS during construction are to be new and, tested by IRS as a general rule.

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

2.2.2.3. The necessities for the selection of materials 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 essential for their acceptance are to be as stated in other Parts of the Rules or as specified on reviewed/approved plans. The testing of products

manufactured as per quality assurance procedures approved by IRS or judged equivalent by IRS and the approval of such procedures are governed by the requirements of IRS.

**2.2.3. Defects or deficiencies and their repairs**

2.2.3.1. At any time IRS may 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.

2.2.3.2. All repairs are subject to the preliminary agreement of IRS. 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.

2.2.3.3. It is the duty of the Owner and Building Yard to notify IRS of any defects or deficiencies noted during the construction of the vessel and/or of any item not complying with the applicable requirements or in any case unsatisfactory.

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

**2.2.4. Equivalence of Rule testing under certain conditions**

Notwithstanding the provisions of [2.2.1.2] of this chapter, IRS may, at its discretion and subject to conditions and checks deemed appropriate, accept certain materials, appliances or machinery which has not been subjected to Rule testing.

**2.3. Vessels under construction**

**2.3.1. Vessels built under supervision of a recognized Classification Society**

In this case, vessels will be admitted to IRS'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 IV.

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 Section 4.4.1.3 of this chapter.]

**2.3.2. Other vessels: Other vessels may be accepted on a case by case basis.**

**2.4. Vessels classed after construction**

**2.4.1. General**

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

- Classed with a recognized Classification Society, or
- Not classed with a recognized Society.

2.4.1.2. 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.

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

2.4.1.4. In addition, IRS may give its judgment upon documentation such as Certificates issued or accepted by the former Classification Society, if any, and statutory Certificates issued by the flag Administration or by a recognized organization on its behalf. Moreover, other documents and/or plans may be particularly required to be supplied to IRS in individual cases.

2.4.2. Vessels classed with a recognized Classification Society

2.4.2.1. In this case, upon satisfactory surveys vessels will be admitted to IRS's Class 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 Section 4, [4.2].

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 recognized Classification Society, as provided by the Owner.

2.4.3. Vessels not classed with a recognized Classification Society

2.4.3.1. In this case, the Class of the vessel will be assigned upon a preliminary review/approval of the documentation listed in [Section 4, 4.2.1.2] of this chapter and subsequent satisfactory completion of the surveys.

2.4.3.2. 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 installations the vessel is provided with.

**2.5. Date of Classification - definitions**

2.5.1. 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.

Even 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 Classification Certificate
- Survey requirements are based on the date of build associated with each major portion of the vessel

2.5.2. Date of Classification for new building

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

2.5.3. 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.

**2.6. Period and validity of Class**

2.6.1. 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 Chapter 2, Section 1, 1.3.3].

2.6.2. Prerequisites for validity of Class

2.6.2.1. The Class assigned by IRS is only valid under the provision that the operating conditions are complied with as stated in the Class Certificate, the operation manual and/or as additionally agreed between the vessel Owner and IRS.

2.6.2.2. The Classification is based on the consideration 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.

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

2.6.3. Validity of Class

2.6.3.1. 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 Chapter 3] and that any repairs required as a consequence of such a survey are carried out to the satisfaction of IRS.

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.

IRS's Head Office or one of its representations are to be right away 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 IRS 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.

2.6.3.2. 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 oil tight bulkheads and the hatch covers or comings that affect a vessel's Class, is to be permanently repaired immediately.

Consideration may be given to allow a vessel to proceed directly to a Repair Yard For locations where sufficient repair facilities are not available. For the intended voyage this may require temporary repairs.

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

2.6.3.3. Where defects are found further to an inspection by an Administration, Owners are to:

- Immediately report the outcome of this inspection to IRS, and
- Ask IRS to perform a survey in order to verify the deficiencies, when related to the Class of the vessel.

2.6.3.4. 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 IRS
- Reviewed/approved drawings and other documentation handed out to the vessel owner and containing particulars or instructions of significance in respect of the classification requirements, e.g. Use of special steel grades is to be kept on board and made available to the surveyor on request.

2.6.3.5. Systems for special use may be excused from Classification. Nonetheless, any changes in such systems that may affect the safety of operations and therefore validity of the vessel's Class, including its classified installations, shall be notified to IRS in due course. This particularly applies to cases, where system changes lead to structural conversions or important changes in the machinery and electrical installation.

2.6.3.6. IRS 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 abide by the Class conditions and to observe the dates for the prescribed surveys.

2.6.4. Repairs, conversions

2.6.4.1. 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 available for inspection so that the kind and extent of the damage can be examined thoroughly. It is the owner who has to during repairs or maintenance work has to arrange so that any damage, defects or non-compliance with the Rule requirements are reported to the Surveyor during his survey.

2.6.4.2. Repairs and conversions of the vessel's hull, machinery as well as special equipment and installations classed have to be carried out under the supervision of IRS 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. Documentation is to be submitted to IRS and/or made available to the attending Surveyor wherever required. Generally, a confirmation of Class with recommendations/conditions of Class, e.g. in case of temporary repairs, requires to be approved by IRS's Head Office.

2.6.4.3. The areas impacted by repairs or conversion shall be treated in the same way as for new buildings. However, experience and technical knowledge gathered since the vessel was built shall be taken into account.

Materials and equipment used for conversions, alterations or repairs are generally to meet the requirements of the Rules for new vessels built under survey; see Section 4 of this chapter.

2.6.4.4. If following major conversions a new Character 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.

2.6.5. Change of ownership

2.6.5.1. In the case of change of ownership, the vessel retains its current Class with IRS provided that:

- IRS 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 IRS's General Terms and Conditions and Rules. This request covers inter alia the condition of the vessel when changing ownership.

2.6.5.2. 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 IRS has not been advised by the former or, as the case may be, new Owner.

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## SECTION 3 SUSPENSION AND WITHDRAWAL OF CLASS

### Contents

3.1.	Discontinuance of Class .....	22
3.2.	Suspension of Class .....	22
3.3.	Withdrawal of Class .....	23
3.4.	Withdrawal/suspension of additional Class Notations .....	23
3.5.	Reassignment/Readmission to Class .....	23
3.6.	Lay-up and recommissioning of laidup vessels .....	24

### 3.1. Discontinuance of Class

#### 3.1.1. General

3.1.1.1. The Class may be either temporarily or permanently discontinued. While in the former case it is referred to as "suspension" of Class, in the latter case is referred to 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 IRS, this fact will be indicated in the Register.

3.1.1.2. 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, IRS will have to be informed accordingly. IRS 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 withdrawn and the Certificate amended accordingly.

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

### 3.2. Suspension of Class

#### 3.2.1. General

3.2.1.1. The Class may be suspended either automatically or following the decision of IRS. In any event, the vessel will be considered as not retaining its Class from the date of suspension until the date when Class is reinstated. The Class may be automatically suspended when one or more of the following circumstances occur: When a vessel is not operated in conformity with the Rule requirements, such as in cases of services or conditions not covered by the service Notation, or trade outside the navigation restrictions 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 assigned

- When the Owner fails to inform IRS in order to submit the vessel to a survey after defects or damages affecting the Class have been detected
- When repairs, alterations or conversions affecting the Class are carried out either without requesting the attendance of IRS or not to the satisfaction of the Surveyor
- Suspension of Class with respect to the above cases will remain in effect until such time as the cause giving rise to suspension has been removed. Moreover, IRS may require any additional surveys deemed necessary taking into account the condition of the vessel and the cause of the suspension.

3.2.1.2. In addition, the Class is automatically suspended:

- 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 IRS's Surveyors with a view to completion prior to resuming trading.
- When the Intermediate Survey has not been completed by the end of the corresponding survey time window (see Part A Chapter 3, section 2.).
- 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.

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

- When a condition of Class is not dealt with within the time limit specified, unless it is postponed before the limit date by agreement with IRS
- When one or more surveys are not held by their limit dates or the dates stipulated by IRS also taking into account any extensions granted in accordance with the provisions of Chapter 2, Section 1,[1.3.3]
- When, due to reported defects, IRS considers that a vessel is not entitled to retain its Class even on a temporary basis, pending necessary repairs or renewals, etc.
- In other circumstances which IRS will consider on their merits, e.g. In the event of non-payment of fees.

3.2.1.4. Suspension of Class decided by IRS takes effect from the date when the conditions for suspension 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.

### 3.3. Withdrawal of Class

#### 3.3.1. General

3.3.1.1. IRS will withdraw the Class of a vessel in the following cases:

- At the request of the Owner;
- When the vessel is reported as a constructive total loss;
- When the vessel is reported scrapped;
- When the vessel is lost;
- When the causes that have given rise to a suspension currently in effect have not been removed within six months after due notification of suspension to the Owner.

3.3.1.2. Withdrawal of Class takes effect from the date on which the circumstances causing such withdrawal occur.

3.3.1.3. When the withdrawal of Class of a vessel comes into effect, IRS will:

- Forward the Owner written notice;
- Delete the vessel from the Register

### 3.4. Withdrawal/suspension of additional Class Notations

#### 3.4.1. General

3.4.1.1. If the survey requirements related to maintenance of additional Class Notations are not complied with, the suspension or withdrawal may be limited to the Notations concerned.

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

3.4.1.3. 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 Class Notation generally does not affect the Class.

### 3.5. Reassignment/Readmission to Class

3.5.1. General

3.5.1.1. At the request of the Owner, a vessel which was previously classed with IRS, 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 IRS.

3.5.1.2. Where, after suspension or withdrawal of Class, the repairs required by IRS 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 Chapter 3.

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 new buildings.

**3.6. Lay-up and recommissioning of laidup vessels**

3.6.1. 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.

3.6.2. 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.

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

3.6.4. If the Owner does not notify IRS of the lay-up of the vessel or does not implement the lay-up maintenance program, the vessel's Class will be suspended and/or withdrawn when the due surveys are not carried out by their limit dates in accordance with the applicable requirements given in A Chapter 3.

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 remains laid up. The minimum content of the lay-up maintenance program as well as the scope of these surveys are to be agreed with IRS. The other periodical surveys which become overdue during the lay-up period may be postponed until the recommissioning of the vessel.

3.6.6. 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 recommissioned, subject to the satisfactory completion of the lay-up condition surveys as described in [3.6.5] above

3.6.7. The periodical surveys carried out during the lay-up period may be credited, either wholly or in part, at the discretion of IRS, 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.

- 3.6.8. When a vessel is recommissioned, the Owner is to notify IRS 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 period. Depending on the duration of the lay-up period, a river trial and/or recommissioning trials of specific installations and/or components will have to be carried out.
  - All periodical surveys which have been postponed in accordance with 6.2, taking into account the provisions of [3.6.4.]
- 3.6.9. Where the previous period of Class expired before the recommissioning and was extended as stated in [3.6.3], in addition to the provisions of [3.6.5] a complete Class Renewal Survey is to be carried out prior to recommissioning. Items which have been surveyed in compliance with the Class Renewal Survey 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.

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## SECTION 4 CLASSIFICATION PROCEDURES

### Contents

4.1. Classification of new building .....	27
4.2. Classification after construction of existing vessels .....	30
4.3. Documentation to be carried on board.....	31

#### 4.1. Classification of new building

##### 4.1.1. Orders for Classification

4.1.1.1. Using the form provided by IRS, the written order for Classification is to be submitted to IRS in triplicate, if required, by the Building Yard or by the Prospective vessel Owner. It should be clearly agreed between the parties concerned, e.g. in the building contract, which party will be responsible for compliance with IRS's Rules and Guidelines and other Rules and Regulations to be applied. IRS will have to be accordingly advised demonstrating the scope of the subcontract where orders for the production of components are placed with subcontractors.

4.1.1.2. The Building Yard and Prospective Owner are responsible for following of the Rules, Guidelines and Regulations by subcontractors. At the time when essentials already approved by IRS for earlier inland navigation vessels built under IRS's supervision are included in the design of the new building, the fact should be clearly stated in the order for Classification. In the meantime amendments to the construction Rules having been introduced shall be taken into account.

##### 4.1.2. Examination of design and construction particulars

4.1.2.1. Before beginning of construction/manufacturing, particulars/documents for review/approval such as construction plans, calculations, details on materials, type designation of standard equipment, etc. are to be submitted to IRS at least in triplicate, in English or other language agreed upon with IRS in due time.

The submitted details shall include all essential details to verify compliance with the construction Rules. According to the specific nature of the vessel to be classed IRS reserves the right to request additional information and particulars to be submitted.

When called for design calculations are to be provided, as supporting documents to the submitted plans.

4.1.2.2. Post IRS evaluation 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 IRS's inspection office(s) in charge of construction supervision.

4.1.2.3. Approval of the IRS is required prior to being realized, in case of any deviations from the review/approved documents e.g. due to requirements of the vessel Owner or change suggested by the Building Yard.

##### 4.1.3. Documentation

4.1.3.1. The design data, calculations and plans to be submitted for review/approval are listed in applicable requirements of Part C Chapter 2, Chapter 3 and Chapter 4.

4.1.3.2. The documentation submitted to IRS is examined in relation to the Class requested in the order for Classification.

4.1.3.3. In case the Building Yard or Prospective Owner consequently wish to have the Class, in particular the type and service Notations or additional Class Notations, granted to the vessel modified, generally plans and drawings are to be re-examined.

- 4.1.3.4. As a rule, modifications of the reviewed/ approved plans regarding items covered by Classification are to be submitted for review/approval.
- 4.1.3.5. The plans and design data to be submitted to IRS are to include all information essential for the evaluation 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 make certain that the design data are complete, correct and compatible with the use of the vessel.
- 4.1.3.6. Design data and calculations are to be adequately referenced. It is the duty of the Building Yard or Prospective Owner to discover that the references used are correct, complete and relevant to the design of the vessel.
- 4.1.3.7. In the case of conflicting information, submitted documentation will be considered in the following order of precedence: design data, plans, design calculations.
- 4.1.3.8. It is the responsibility of the Building Yard or Prospective Owner to determine that drawings used for the procurement, construction and other works are in accordance with the reviewed/approved plans.
- 4.1.4. Supervision of construction and trials
- 4.1.4.1. IRS will evaluate the production facilities and procedures of the Building Yard, subcontractors and other manufacturers, to determine whether they meet the requirements of IRS'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.
- 4.1.4.2. Materials, components, appliances and installations issue to inspection are to comply with the relevant Rule requirements and are to be presented for inspection by IRS's Surveyors, unless otherwise provided as a result of special arrangements agreed upon with IRS. It is the duty of the Building Yard, subcontractors and other manufacturers to inform IRS's inspection office in due time about particular surveys to be carried out.
- 4.1.4.3. In order to enable the Surveyor to fulfill 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.
- 4.1.4.4. During the phase of construction of the vessel or installation, IRS will convince itself by surveys and inspections that:
- Parts for hull, machinery and electrical installations or special equipment subject to review/approval have been constructed in compliance with the reviewed/approved drawings/documents;
  - 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 IRS's Rule requirements;
  - Welded parts are produced by qualified welders having undergone the tests required by the applicable Rules;
  - For hull sections or components requiring IRS's approval Certificates have been presented. The Building Yard, subcontractors or other manufacturers will

have to ensure that any parts and materials 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.

#### 4.1.5. Tests

- 4.1.5.1. 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, IRS may require performance of trials under specified severe conditions.

- 4.1.5.2. Use of measuring equipment and of service suppliers

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

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 recognized national or international standard.

- 4.1.5.3. 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.

- 4.1.5.4. 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.

- 4.1.5.5. Other equipment

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

#### 4.1.6. Trials on board

- 4.1.6.1. 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.

4.1.6.2. Reports, Certificates, documentation

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

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

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

**4.2. Classification after construction of existing vessels**

4.2.1. Admission to Class

4.2.1.1. Vessels originally not built under IRS supervision may be classed subsequently following the procedures described in the following.

The Owner of the vessel should contact IRS for the necessary arrangements. Information should be given to IRS about the earlier Class status and period, as well as about any conditions of Class/recommendations imposed by the former Classification Society. The written order for Admission to Class of existing vessels or special equipment including the required documents shall be formally addressed to IRS's Head Office in triplicate, if needed, using the form provided by IRS.

Where applicable the following documents which have been updated to present status shall be submitted for examination. Information provided about any additional Regulations to be observed.

4.2.1.2. Particulars for hull and machinery

- Particulars of the type, output and main data, building year and manufacturer of the main engine(s) and of the auxiliary machinery essential for operational safety, the electrical installations, the automatic/remote-control system, the safety arrangements, the steering gear and the windlasses.
- 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.
- Steering gear arrangement and piping system and steering gear manufacturer make and model information.
- General arrangement, capacity plan, hydrostatic and cross curves, loading manual, where required, midship section, longitudinal and transverse sections, transverse bulkheads, decks, shell expansion, 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 engines, propulsion gears and clutch systems, starting-air receivers, auxiliary boilers and related systems, cooling water and lubricating

oil systems, bilge and ballast systems, fuel oil and starting-air systems, air and sounding pipe systems, electrical arrangements and wiring diagrams

- Torsional vibration calculations of the main shafting system including its branches for vessels less than two years old
- 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
- Drawings for flexible couplings and/or torque limiting shafting devices in the propulsion line or manufacturer, make, model and rating information for vessels with the additional class notation 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 IRS in lieu of specific items of the listed documentation not available at the time of the transfer of class

#### 4.2.2. Examination of design and surveys

4.2.2.1. The requirements according to [4.1.2] are applicable in principle. The report on the survey according to [4.2.3] will be appraised together with the examination of the particulars and/or drawings to be re-viewed/approved.

4.2.2.2. Where adequately 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.

4.2.2.3. 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, IRS 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 Chapter 3 is to be carried out.

#### 4.2.3. Reports, Certificates, documentation

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

4.2.3.2. Regarding Surveyor's reports and Certificates, the provisions of [4.1.4] also apply to the Classification of existing vessels.

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

### 4.3. Documentation to be carried on board

#### 4.3.1. General

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

- If required stability handbook and loading manual;
- Class certificate - all survey statements and reports;
- If required depiction of corrosion protection system,

- "as built" drawings and other documentation containing particulars or instructions of significance as far as IRS is concerned, e.g. Use of special steel etc;
- List of important testing/monitoring procedures to be followed in connection with validity of class.

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## CHAPTER 2 CLASS DESIGNATION

### CONTENTS

SECTION 1 GENERAL .....	34
SECTION 2 CLASSIFICATION NOTATIONS.....	37

## SECTION 1 GENERAL

### Contents

1.1. Definitions.....	35
1.2. Class Designation .....	35
1.3. Characters of classification .....	35

**1.1. Definitions**

- 1.1.1. The Class of an inland navigation vessel that is assigned for hull and machinery including electrical installations conforms to the IRS Rules and is articulated by the "Character of Classification".
- 1.1.2. Details as regards to hull, machinery including electrical installations as well as special installations and equipments integrated in the Classification procedure are indicated by type and service Notations and additional Class Notations affixed to the Character of Classification.
- 1.1.3. The Character of Classification and the Notations furnish the scope that further becomes the basis for the Class of the vessel and refer to the specific Rule requisites which are to be fulfilled for their assignment. Specifically, the Character of Classification and Notations are assigned as per the type, service and range of navigation of the vessel and other similar criteria which have been facilitated by the owner or building yard when requesting for Classification.
- 1.1.4. IRS may amend the Character of Classification or the Notations at any given time, when the available information depicts that the requested or already assigned Notations are not appropriate for the proposed type, service, navigation and any other criteria taken into consideration for Classification.
- 1.1.5. The Character of Classification and Notations assigned to a vessel are indicated on the Certificate of Classification and also in the Register of inland navigation vessels that are published by IRS. It is the discretion of the owner or building yard whether to have the Notations, together with the whole Class designation, included in the published Register of IRS or not.
- 1.1.6. The Character of Classification and Notations that are applicable to existing vessels fulfill the Rules of IRS in force at the date of assignment of Class, as indicated in [1.3.1] below.
- 1.1.7. However, the Character of Classification and Notations of existing vessels may be updated as per the current Rules, as far as applicable.

**1.2. Class Designation**

Notation below depicts an example of Class designation for hull and machinery of an inland navigation vessel.



TKR-OIL, ESP, IG,TC

**1.3. Characters of classification**

- 1.3.1. Characters of construction for hull and machinery installations
  - 1.3.1.1. The character heading the Class designation indicates that hull, machinery as well as special installations and equipments included in the Classification have been constructed:
    - Under the supervision of and as per the IRS Rules at the Building Yard and/or at sub-contractors supplying construction components/hull sections, as applicable
    - The IRS certification of components and materials requires inspection and is subject to IRS construction Rules.

1.3.1.2. The character symbol  will be assigned, if the vessel has been

envisioned, designed and constructed as per the Rules and under the supervision of another recognized Classification Society and is eventually - or at a later date - classed with IRS,

- 1.3.1.3. The character \* will be assigned to the relevant part of the vessel, where the procedures for the assignment of Classification is other than those detailed in [1.3.1.1] and [1.3.1.2], but are deemed acceptable,
  - 1.3.1.4. On the occasion of Admission to Class (change of Class) from a Society or institution which is not recognized, prior examination of drawings and existing Certificates of the hull structure, the machinery and electrical installations is provisional.
  - 1.3.1.5. Under similar conditions, one of the characters defined in [1.3.1.1] to [1.3.1.3] is assigned, followed by the character IM to the classed machinery installation.
  - 1.3.1.6. Generally, one of the construction characters above is assigned, under the same conditions and followed by the appropriate character, to any special equipment for which a Classification Certificate is issued.
- 1.3.2. Characters of Class and compliance with Rules
- If the vessel's hull fully conforms to the IRS Rules - or another recognized Classification Society or their Rules, considered being equivalent, the Character of Classification will be: (something missing)
- 1.3.3. Class period
- The duration of the class period is 5 years.
- 1.3.4. Equipment Character
- 1.3.4.1. The character E is placed after the range of navigation and it indicates that the vessel's equipment lay on anchors and chain cables meet the applicable requirements of the Rules.
  - 1.3.4.2. The character E is replaced by e, in case the vessel's equipment does not meet the Rule requirements, but is deemed by IRS to be acceptable for the intended service. Reference can be made in the Classification Certificate to the compliance of the equipment with other Rules.
  - 1.3.4.3. Where IRS takes into account that it is not required to form an opinion on the anchor equipment, with regard to particular conditions, the character E is replaced by (\*).

**SECTION 2 CLASSIFICATION NOTATIONS**

**Contents**

2.1. General .....38

2.2. Notations .....38

2.3. Notations for vessels carrying dry cargoes .....39

2.4. Notations for vessels carrying liquids and gaseous cargoes in bulk .....44

2.5. Notations for vessels carrying passengers.....45

2.6. Notations for vessels carrying dredging activities .....46

2.7. Notations for working units .....46

2.8. Notations for miscellaneous notations.....47

2.9. Other additional class notations .....47

2.10. Range of navigation.....50

**2.1. General**

- 2.1.1. There are different kinds of Notations, such as type and service Notations, describing some specific features, abilities, service restrictions or special installations and equipments included in the Classification, as defined in Part1.
- 2.1.2. The Notations to be affixed to the Character of Classification related to the type and service of the vessel are not obligatory and may be chosen by the owner or building yard. The chosen scope of Notations has to be defined in the Classification specification and also in the building specification.

**2.2. Notations**

**2.2.1. General**

- 2.2.1.1. Generally, the Notations will be assigned as per the indications or suggestions of the prospective vessel owner or building yard.
- 2.2.1.2. A Notation indicating the type and service of the vessel will be added to the Class designation.
- 2.2.1.3. The Notations, which have been considered for Classification, define the type and service of the vessel as per the request for Classification signed by the likely owner or building yard. The assignment of any Notation to a new vessel is subject to compliance to the general Rule requisites mentioned in the **Part A, B, C, D, E, F** of IRS Rules for Inland Navigation Vessels.
- 2.2.1.4. The Notations applicable to existing vessels conform to the Rules of IRS in force at the date of assignment of Class. However, the Notations of existing vessels may be updated at the plea of the owner and as per the current Rules, as far as applicable.
- 2.2.1.5. A Notation may be concluded by one or more additional Class Notations that adds precision regarding the type or service of the vessel, for some of which specific Rule requirements are applied.
- 2.2.1.6. The Table 2.2.1 enlists various type and service Notations which may be assigned to a vessel in alphabetical order. Besides that, the additional Class Notations to the type and service Notations are listed in Table 2.2.2.
- 2.2.1.7. Where the proposed duties of the vessel include support functions, they may be described by Notations which are analogous to seagoing vessels or to special type regarding the hull configuration and/or particular kind of propulsion. Such Notations may be assigned in place of or in addition to the Notations referred to, when the applicable Rule requirements are met.
- 2.2.1.8. It is sole discretion of IRS to grant other type and service Notations or additional Class Notations.

Table 2.2.1

Type and Service Notations	Reference for definition	Applicable Rules
<b>Barge</b>	2.3.1.3	Part 9 F Chapter 1 Section 1 or 2 as applicable
<b>Cargo vessel</b>	2.3.1.1	Part 9 F Chapter 1 Section 1 or 2 as applicable
<b>Container vessel</b>	2.3.1.2	Part 9 F Chapter 1 Section 4
<b>Dredger<sup>1</sup></b>	2.6.1.1	Part 9 F Chapter 1 Section 9
<b>Hopper barge</b>	2.6.1.3	Part 9 F Chapter 1 Section 9
<b>Hopper dredger<sup>1</sup></b>	2.6.1.2	Part 9 F Chapter 1 Section 9
<b>Launch</b>	2.7.1.4	Part 9 F Chapter 1 Section 10
<b>Passenger vessel</b>	2.5.1.1	Part 9 F Chapter 1 Section 6
<b>Pontoon<sup>2</sup></b>	2.7.1.3	Part 9 F Chapter 1 Section 8
<b>Pushed barge</b>	2.3.1.1	Part 9 F Chapter 1 Section 1 or 2 as applicable
<b>Pusher</b>	2.7.1.2	Part 9 F Chapter 1 Section 7
<b>Restaurant ship</b>	2.5.1.4	Part 9 F Chapter 2 Section 4
<b>Ro-Ro vessel</b>	2.3.1.5	Part 9 E Chapter 1 Section 5
<b>Special service<sup>3</sup></b>	2.8.1.1	
<b>Tanker</b>	2.4.1.1	Part 9 E Chapter 1 Section 3
<b>Tug</b>	2.7.1.1	Part 9 E Chapter Section 7

<sup>1</sup> This Notation may be completed by the type of the dredger, e.g. **Hopper suction dredger**.

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

<sup>3</sup> 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 IRS, according to its type and service.

### 2.3. Notations for vessels carrying dry cargoes

#### 2.3.1. Type and service Notations

##### 2.3.1.1. Cargo vessel

The type and service Notation Cargo vessel refers to vessels proposed for the job of transmittance of solid cargo and/or bulk cargo in conformation to the IRS Rules Requirements of Inland Vessels.

2.3.1.2. Container vessel

The type and service Notation Container vessel refers to vessels particularly proposed for the job of transmittance of containers in conformation to the IRS Rules Requirements of Inland Vessels.

2.3.1.3. Barge

The type and service Notation Barge applies to vessels without propulsion proposed for the job of transmittance of solid cargo and/or bulk in conformation to the IRS Rules Requirements of Inland Vessels.

2.3.1.4. Pushed barge

The type and service Notation Pushed barge applies to vessels without propulsion as part of a pushed convoy proposed for the job of transmittance of solid cargo and/or bulk in conformation to the IRS Rules Requirements of Inland Vessels.

2.3.1.5. Ro-Ro vessel

The type and service Notation Ro-Ro vessel applies to vessels particularly proposed to transport vehicles, trains and loads on wheeled beds, conforming to the IRS Rules Requirements of Inland Vessels.

2.3.2. Additional Class Notations

2.3.2.1. Equipped for transport of containers

The type and service Notation Cargo vessel may be concluded with the additional Class Notation **Equipped for transport of containers**, where the vessel conforms to the Rule requisites stated under the IRS Rules Requirements of Inland Vessels.

2.3.2.2. Equipped for transport of wheeled vehicles

The type and service Notation Cargo vessel may also be concluded with the additional Class Notation Equipped for transport of wheeled vehicles, where the vessel conforms to the Rule requisites stated under the IRS Rules Requirements of Inland Vessels.

2.3.2.3. 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 Part 9 F Additional Requirements for Notations.

2.3.2.4. 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.

## 2.3.2.5. 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.

## 2.3.2.6. Heavy cargo

The type and service Notation Cargo vessel will be completed by the additional Class Notation **Heavy cargo** [AREA1, x1 kN/m<sup>2</sup>, AREA2, x2kN/m kN/m<sup>2</sup>] the double bottom and/or hatch covers and/or other cargo areas designed to support heavy cargoes fulfill the appropriate Rule requirements. The values x the maximum allowable local pressures on the various zones where the cargo is intended to be stowed. The requirements or the assignment of this additional Class Notation are given in Part 9 F Additional Requirements for Notations.

## 2.3.2.7. 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 fulfill 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.

## 2.3.2.8. Grab loading

The Notation **Grab loading** may be assigned to vessels with hold tank tops specially reinforced for loading/unloading cargoes by means of grabs or buckets. The requirements for the assignment of this Notation are given in Part F Requirements for additional notations. 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**.

**Table 2.2.2**

Additional Class Notation	Reference for definition	Applicable Rules
Notations related to type of construction <sup>1</sup>		
Double hull	2.9.2.2	Part B chapter 5
Single hull	2.9.2.2	
With double bottom	2.9.2.2	
With double sides	2.9.2.2	
Notations related to hull materials <sup>1</sup>		
HS	2.9.2.1	
AL	2.9.2.1	
C	2.9.2.1	
W	2.9.2.1	
Other Notations <sup>1</sup>		
ADN <sup>2</sup>	2.2.1.9	Part F Chapter 2 Section 5.
Ice	2.9.3.1	
Ind	2.9.2.3	
No propulsion	2.9.2.4	
Intact stability	2.9.4.1	
Damage stability	2.9.4.2	
Max.density	2.9.2.5	
Max.t°	2.9.2.5	
Additional to cargo vessels		
1R	2.3.2.4	Part 9 F Chapter 2 Section 9 Part 9 F Chapter 2 Section 1
2R	2.3.2.5	
Grabloadin	2.3.2.8	
g	2.3.2.6	
Heavy cargo [AREA1, x <sub>1</sub> kN/m <sup>2</sup> -	2.3.2.7	
AREA2,x <sub>2</sub> kN/m <sup>2</sup> ] Nonhomload	2.3.2.1	
Equipped for transport of containers	2.3.2.2	
Equipped for transport of wheeled vehicles	2.3.2.3	
Additional to passenger vessels		
Ferry	2.5.2.1	Part 9 F Chapter 2 Section 4,
Fire	2.5.2.2	
Additional to tankers		

TP=xkPa	2.4.2.1	Part 9 F Chapter 3 Section G
DP =xkPa	2.4.2.1	Part 9 F Chapter 3 Section 4
Type G	2.4.2.2	Part 9 F Chapter 3 Section 4
Type C	2.4.2.3	Part 9 F Chapter 3 Section 4
Type N closed	2.4.2.4	Part 9 F Chapter 3 Section 4
Type N open with flame arresters	2.4.2.5	Part 9 F Chapter 3 Section 4
Type N open	2.4.2.6	Part 9 F Chapter 3 Section 4
Type N open– Bunker boat	2.4.2.7	Part 9 F Chapter 3 Section 4
Type N open– Bilges boat	2.4.2.8	Part 9 F Chapter 3 Section 4
Flashpoint>60°C	2.4.2.9	Part 9 F Chapter 3 Section 4
Additional to tug/pusher		
DGL	2.7.2.1	Part 9 F Chapter 3 Section 8
DG	2.7.2.2	Part 9 F Chapter 3 Section 9
D		
Notation related to class		
Laid-up	Chapter 1 Section 3, 3.6	
<sup>1</sup> Additional to all vessels <sup>2</sup> Applicable to convoys /vessels carrying dangerous goods		

2.3.2.9. DG

The type and service Notation **Cargo vessel** will be concluded by the additional Class Notation **DG** when the cargo vessel is designed to transport dry dangerous goods in conformation to the IRS Rules Requirements of Inland Vessels.

2.3.2.10. Heavy cargo

The type and service Notation Cargo vessel will be concluded by the additional Class Notation Heavy cargo, when the double bottom and/or hatch covers and/or other cargo areas designed to support heavy cargoes fulfilling the appropriate Rule requirements. The values indicate the maximum permissible local pressures on the different zones where the cargo is proposed to be stowed. The requirements or the assignment of this additional Class Notation are laid out in the IRS Rules Additional Requirements for Notations.

## 2.4. Notations for vessels carrying liquids and gaseous cargoes in bulk

### 2.4.1. Type and service Notations

#### 2.4.1.1. Tanker

The type and service Notation **Tanker** applies to vessels specially proposed to transport liquid or gaseous cargo in bulk, in conformation to the requisites stated under the IRS Rules Additional Requirements for Notations.

The list of cargoes the tanker is allowed to carry will be issued by IRS, in the case of transport of dangerous goods.

### 2.4.2. Additional Class Notations

#### 2.4.2.1. 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.

#### 2.4.2.2. Type G

**Type G**, applies to a tanker built and equipped in compliance either with the applicable PART 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

#### 2.4.2.3. Type C

**Type C**, applies to a tanker built and equipped in compliance either with the applicable Part 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

#### 2.4.2.4. Type N closed

**Type N closed**, applies to a tanker built and equipped in compliance either with the applicable Part 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

#### 2.4.2.5. 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 Part 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

#### 2.4.2.6. Type N open

**Type N open**, applies to a tanker built and equipped in compliance either with the applicable Part 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

#### 2.4.2.7. Type N open – Bunker boat

**Type N open- Bunker boat**, applies to a tanker built and equipped in compliance either with the applicable Part 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

## 2.4.2.8. Type N open – Bilges boat

**Type N open- Bilges boat**, applies to a tanker built and equipped in compliance either with the applicable Part 9 F Requirements of IRS or with the ADN Regulations for this type of vessel.

## 2.4.2.9. Type N open - Oil separator vessel

**Type N open-Oil separator vessel** applies to a tanker with a deadweight of up to 300 tons built and equipped to accept and carry oily and greasy wastes from the operation of vessels, in compliance with the applicable rule requirements stated under Part 9 F , Chapter 3, Sec 5.

## 2.4.2.10. Type N open- Supply vessel

**Type N open- Supply vessel** applies to a tanker with a deadweight of up to 300 tons built and equipped for the carriage and delivery to other vessels of products intended for the operation of vessels, in compliance with the applicable rule requirements stated under Part 9F Chapter 3 Sec 6.

## 2.4.2.11. Flash point &gt; 60 °C

The type and service Notation may be concluded by the additional Class Notation Flash point > 60 °C, where the tanker is proposed to transport only such type of products, under some conditions.

**2.5. Notations for vessels carrying passengers**

## 2.5.1. Type and service Notation

## 2.5.1.1. Passenger vessel

The type and service Notation **Passenger vessel**, applies to vessels specially proposed to transport passengers conformation to the IRS Additional Requirements for Notations.

## 2.5.1.2. Hotel ship

Type and service notation for ships conformation to IRS Rules Additional Requirements for Notations for passenger vessels, excluding the requisites for vessel arrangement, fire detection, fire protection and extinguishing, electrical installations, stability and buoyancy.

## 2.5.1.3. Excursion boat

Type and service notation for ships conformation to the IRS Rules Additional Requirements for Notations for passenger vessels, except the requisites for vessel arrangement, fire detection, fire protection and extinguishing, electrical installations, stability and buoyancy.

## 2.5.1.4. Restaurant ship

Type and service notation for ships conformation to the IRS Rules Additional Requirements for Notations for passenger vessels, except the requisites for

vessel arrangement, fire detection, fire protection and extinguishing, electrical installations, stability and buoyancy.

2.5.2. Additional Class Notations

2.5.2.1. Ferry

The type and service Notation **Passenger vessel** may be concluded by the additional Class Notation **Ferry**, for vessels specifically equipped to load wheeled vehicles, in conformation to the IRS Rules Additional Requirements for Notations.

2.5.2.2. Fire

The additional Class Notation Fire is added to the type and service Notation Passenger vessel when the vessel's installations in conformation to the IRS Rules Additional Requirements for Notations.

**2.6. Notations for vessels carrying dredging activities**

2.6.1. Type and service Notations –

2.6.1.1. Dredger

The type and service Notation **Dredger**, applies to vessels specially equipped for dredging activities (except for transmitting dredged material)

2.6.1.2. Hopper dredger

The type and service Notation Hopper dredger applies to vessels specially equipped for dredging activities and shipping spoils or dredged material, complying with the applicable Requirements for of IRS.

2.6.1.3. Hopper barge

The type and service Notation Hopper barge, applies to vessels specially equipped for shipping spoils or dredged material only, complying with the applicable Requirements for Notations of IRS.

2.6.1.4. Split hopper barge

The type and service Notation Split hopper barge, applies to vessels specially equipped for shipping spoils or dredged material only, and which open longitudinally around hinges in compliance with IRS Rules.

**2.7. Notations for working units**

2.7.1. Type and service Notations

2.7.1.1. Tug

The type and service Notation **Tug**, applies to vessels specially equipped for towing, complying with applicable Additional Requirements for Notations of IRS.

2.7.1.2. Pusher

The type and service Notation **Pusher**, applies to vessels specially equipped for

pushing, complying with applicable Additional Requirements of IRS.

#### 2.7.1.3. Pontoon

The type and service Notation Pontoon is assigned to units proposed to transmit cargo and/or equipment on deck only, complying with the IRS Rules Additional Requirements for Notations.

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

#### 2.7.1.4. 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 IRS Rules requirements for the additional notations.

### 2.7.2. Additional Class notations for tug / pusher

#### 2.7.2.1 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 IRS Rules Part 9 F Chapter 3 Section 7.

#### 2.7.2.2 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 IRS Rules Part 9 F Chapter 3 Section 9.

## 2.8. Notations for miscellaneous notations

### 2.8.1. Type and service notations

#### 2.8.1.1. Special Service.

The type and service Notation **Special service** is as-signed 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 IRS 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.

## 2.9. Other additional class notations

### 2.9.1. General

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

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

2.9.2. Special consideration for hull structures

2.9.2.1 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 IRS.

2.9.2.2 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 bottom 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

2.9.2.3 Independent cargo tank

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

2.9.2.4 No-propulsion

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

2.9.2.5 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.

2.9.3. Navigation in Ice

2.9.3.1 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 of IRS.

#### 2.9.4. Stability Notations

##### 2.9.4.1 Intact stability

The additional Class Notation **Intact stability** can be assigned to a vessel for which an intact stability calculation has been examined by IRS and found to comply with specific Requirements for Notations of IRS.

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.

##### 2.9.4.2 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 IRS and found to comply with specific requirements for Notations.

The Certificate/attestation issued specifies the criteria considered for this examination and is to be annexed to the Classification Certificate.

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).

##### 2.9.4.3 The Certificates/attestations issued for intact & damage stability remain valid unless:

- The relevant structure, installations or equipments of the vessel are modified or not kept in a satisfactory condition of maintenance and operation
- The conditions of operation of the vessel vary from those taken into consideration for the examination
- The proper applicable documentation examined by IRS is not available on board
- The classification certificate is not legitimate

The above mentioned legitimacy is also applicable for other class notations considering intact and/or damage stability calculations.

#### 2.9.5. Miscellaneous additional class notations

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

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.

**2.10. Range of navigation**

2.10.1 General

- 2.10.1.1 The assignment of one of these Notations does not free 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 Chapter 1, section 1.1.3.2.
- 2.10.1.2 Upon request of the prospective owner for a particular navigation condition, IRS can compute the vessel's scantlings for any wave height between 1.2 m and 2 m, as per the provisions in the construction Rules, to be defined by IRS. In such cases, the range of navigation Notation will be accordingly assigned.
- 2.10.1.3 The range of navigation which IRS assigns upon examination of plans or any other equivalent procedure does not entirely determine the actual capability 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 comparison should be made between a navigation Notation assigned by IRS and a navigation zone or category as defined by national or international Regulations. For vessels trading in defined river systems or waters only, divergence from the Rules requisites for the equipment may be admitted or required by the Authorities.

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## CHAPTER 3 SURVEY

### CONTENTS

SECTION 1 GENERAL .....	52
SECTION 2 INTERMEDIATE SURVEYS .....	58
SECTION 3 CLASS RENEWAL SURVEYS .....	64
SECTION 4 NON-PERIODICAL SURVEYS .....	78
SECTION 5 BOTTOM SURVEYS.....	81
SECTION 6 INSTALLATION UNDER PRESSURE .....	84
SECTION 7 PERFORMANCE AND SCOPE OF THICKNESS .....	88

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## SECTION 1 GENERAL

### Contents

1.1.	Surveys for maintenance for class .....	53
1.2.	Selection of Surveyors .....	55
1.3.	Documentation of surveys, confirmation of class .....	55
1.4.	Surveys in accordance with Regulations of the Authority .....	56
1.5.	External service suppliers .....	56
1.6.	Periodical Surveys .....	56
1.7.	Surveys relative to Class Notations from other IRS's Rules .....	57
1.8.	Class extension surveys .....	57

## 1.1. Surveys for maintenance for class

- 1.1.1. For maintenance of Class, some periodical and non-periodical surveys of hull and machinery, including electrical installations as well as special equipment and installations need to be constantly executed as agreed to be in the scope of Classification and as detailed in Part 1 Chapter 4.

The periodical surveys comprises of:

- The Class Renewal Survey,
- The Intermediate Survey, the bottom survey,
- The propeller shaft survey,
- The boiler survey, and surveys for the maintenance of additional Class Notations, where applicable.

Such surveys are conducted at intervals and under conditions discussed in this Chapter & also in Chapter 4, Part1.

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

The surveys are to be executed as per the relevant requirements and so as to substantiate that the hull, machinery, including electrical equipment, installations and appliances conform to the applicable Rules and will stay in satisfactory condition.

Where the conditions for the maintenance of type and service Notations and additional Class Notations are not conformed to, the type and service notation and/or the additional Class Notations as appropriate will be suspended and/or withdrawn as per the applicable Rules given in Part 1 Chapter 4.

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

Unless specified otherwise, any survey other than propeller shaft , bottom or boiler survey may be affected by conducting partial surveys or splitting of surveys, e.g. continuous survey hull and machinery, at varied times to be agreed upon with IRS, provided that such a survey procedure is sufficiently extensive. The dividing of a survey shall be such that it doesn't impair its effectiveness.

- 1.1.2. In addition to the above periodical surveys, vessels are to be submitted for non-periodical surveys like occasional surveys, whenever the circumstances so require.

Occasional surveys are done 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
- Repair or replacement work
- Postponement of surveys or of conditions of Class/recommendations
- Damage or suspected damage
- Amendments or conversion
- Extraordinary surveys as parts of IRS's quality assurance system.

IRS reserves the right, after due consideration, to change the periodicity, advance or postpone surveys, taking into consideration some specific circumstances.

At the time when survey is due, the underlying applies:

- In the case of a Class Renewal Survey, IRS may grant an extension in case there is documented agreement to such an extension and Class extension surveys are

executed prior to the expiry date of the Class Certificate, and IRS is satisfied that there is a valid explanation for such an extension. In the case of Intermediate Surveys, no postponement is granted. The survey is to be finished within their prescribed time windows.

- In case of rest of periodical surveys and conditions of Class/recommendations, extension or postponement may be granted, if there is an adequate technical valid explanation for such an extension or postponement.

#### 1.1.3. General procedure of survey

##### 1.1.3.1. The general procedure of survey comprises of:

- An overall examination of the parts of the vessel covered by the Rule requirements.
- Random inspection of selected items covered by the Rule requirements
- Attending trials and tests, where applicable and deemed essential by the Surveyor.

1.1.3.2. When the outcome of a survey is 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, corrective measures are to be taken prior to continuing the vessel in service.

1.1.3.3. IRS's survey requisites cannot be considered as a replacement for specification and acceptance of repairs and maintenance, which always remain the responsibility of the Owner.

#### 1.1.4. Definitions and procedures related to surveys

##### 1.1.4.1. Overdue surveys

A limit date is assigned to each periodical survey, as is specified by the relevant requirements of the Rules (end of survey interval or end date of window) and it is to be completed by that date.

It is considered overdue when it has not been done by its limit date.

##### 1.1.4.2. Conditions of Class/recommendations

Any flaw and/or deficiency affecting the Class and which has to be attended to within a limited time span, is indicated as a condition of Class/recommendation. This condition of Class/recommendation remains pending, until it is settled. When it is not settled by its limit date, the condition of Class/recommendation is overdue.

##### 1.1.4.3. Memoranda

Any information supposed as noteworthy for IRS's convenience as well as flaws and/or deficiencies which do not affect the Class or its maintenance, are to be indicated as memoranda. Memoranda are not to be considered as conditions of Class/recommendations.

#### 1.1.5. Preparations and conditions for surveys

1.1.5.1. Surveys required for maintenance of Class are to be settled with IRS's Head Office or the local IRS representations in due time, so that the measures foreseen may be assessed and supervised, as required. For e.g. in the case of repairs and/or modifications to any parts subject to Classification.

- 1.1.5.2. The access to the vessel and/or to the workshops is to be given to the Surveyor at all the times, in order to perform their duties. The Owner is required to furnish the facilities for the safe implementation of the surveys.

For their internal examination, tanks and spaces are to be safe for access, i.e. ventilated, cleared, cleaned gas freed et al. For the survey of the internal structure of vessel, including close up survey, resources are to be provided to enable the Surveyor to examine the structure in a safe and practical way. Spaces and tanks are to be adequately illuminated, clean and free from scale, water, dirt, oil residues, etc. to expose deformation, corrosion, fractures, damage or other structural weakening. 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 essential by the Surveyor. The Class Certificate and other documents related to Classification and taken on board are to be made available to the Surveyor.

- 1.1.5.3. In special cases, e.g. where damages require instant inspection, decision regarding conducting the survey may be made while the vessel is not in harbor. The procedure, pre-requisites and certain specific conditions need to be met, e.g. weather, will be fixed case by case. The decision regarding the feasibility of the survey may only be taken in agreement with the Surveyor.

- 1.1.5.4. IRS keeps the owner informed about the status of Class, indicating the most recent recognized surveys and the next due dates. However, in principle, it is the Owner's responsibility to conform to the Class conditions and to keep in mind the dates for the prescribed surveys, see Part A, Chapter 1, section 2.

- 1.1.5.5. Upon request IRS may agree to testing, monitoring and analysis procedures as a supplement to or equivalent replacement for conventional survey methods.

- 1.1.5.6. IRS reserves the right to widen the scope of a survey and/or inspection for certain specific reasons, for e.g. in case of suspected damage or on basis of negative experience gained, possibly on board of similar vessels or vessels with similar components.

Similarly, IRS also reserves the sole right to order surveys between the due dates of regular periodical surveys.

## 1.2. Selection of Surveyors

### 1.2.1. General

In principle, IRS chooses the acting Surveyors. However, the Owner is free to ask other IRS's Surveyors to check the findings of surveys and decisions resulting there from, which deem to be doubtful, by making a special request to Head Office.

## 1.3. Documentation of surveys, confirmation of class

The engineering analysis shall be submitted to the Administration as soon as it is ready, as per the guidelines devised by the Organization, and shall include, as a minimum, the underlying elements:

### 1.3.1. General

- 1.3.1.1. The records as well as any requirements of each survey, upon which maintenance

of Class has been made conditional, will be mentioned in 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 a particular survey. IRS reserves the right to alter the endorsements made by the Surveyors.

1.3.1.2. In the Register the dates of the surveys will be mentioned.

1.3.1.3. On IRS's request, the Class status may be confirmed in writing by a separate certificate/attestation issued by IRS.

1.3.1.4. Where defects are repaired only temporarily, or where the Surveyor does not consider immediate repair or replacement mandatory, the vessel's Class may be confirmed for a limited period. Cancellation of such confirms will have to be given in the Survey Statement/Certificate.

#### **1.4. Surveys in accordance with Regulations of the Authority**

##### **1.4.1. General**

All the activities given in 1.4.2 and 1.4.3, where applicable, require issuance of relevant certificates/attestations and likewise are subject to the respective latest edition of Society's General Terms and Conditions.

##### **1.4.2. IRS's intervention**

If the Owner requests for a survey on account of international conventions, IRS will execute them by order or within the framework of official order and acts on the behalf of the concerned Authorities, as per the respective provisions.

Where feasible, such surveys will be executed simultaneously with the Class surveys.

##### **1.4.3. Validity of Certificates/attestations**

If vessel's Class expires or IRS withdraws it, all Certificates/attestations issued by IRS will become void on their own. If the Class is renewed or reassigned later, the validity of these Certificates/attestations may be invigorated within the scope of their original validity period, provided that all the due surveys in the meanwhile have been accomplished to the Surveyor's satisfaction.

#### **1.5. External service suppliers**

##### **1.5.1. General**

Firms or personnel involved in services affecting Classification and statutory work are subject to approval by IRS. Also, the measuring and test equipment, inspection procedures used in Building Yards, workshops and on board vessels shall be apt for these services, as they may form the basis for Surveyor's decisions by affecting Classification or statutory work. The firms shall keenly make out and calibrate each unit of such equipment on an individual level to bring them at par with a recognized national or international standard.

#### **1.6. Periodical Surveys**

1.6.1. The periodical surveys listed below are to be conducted for the hull, machinery plus

electrical installations as well as special equipment and installations included in the Classification of the inland navigation vessel. If, for some apparent reasons, e.g. a temporary out-of-service state of equipment, parts included in the Classification cannot be surveyed, this will be taken note of in the Survey Certificate/ Statement.

- 1.6.2. Where Flag State Regulations are applicable, which enforce inspection intervals different from the Class related intervals, the intervals will be harmonized in the individual case to lower the number of single surveys, where possible.

## **1.7. Surveys relative to Class Notations from other IRS's Rules**

### **1.7.1. General**

The surveys requested for granting of Class Notations defined in IRS's Rules but not in inland navigation Rules have to be executed in line with the corresponding requisites for maintenance of Class.

## **1.8. Class extension surveys**

### **1.8.1. General**

On special request of the Owner and following surveys of hull and machinery afloat, IRS is empowered to and may extend the Class by no more than 12 months in total, within two periods of Class, provided that the surveys reveal that hull and machinery are in agreeable condition. 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. Structural elements of which are riveted, the last survey in dry-dock shall not date back more than 3 years.

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## SECTION 2 INTERMEDIATE SURVEYS

### Contents

2.1. General.....	59
2.2. Surveys performance .....	59
2.3. Hull structure .....	59
2.4. Machinery.....	60

**2.1. General**

IRS empowers the Intermediate Survey to be happened within 2.5 years after the initiation of the period of class and it shall be carried out between six months before to six months after the initiation date.

**2.2. Surveys performance****2.2.1. General**

2.2.1.1. In the Intermediate Surveys all the inspections and checks required for eventual annual surveys should be included. Moreover, the following necessities shall be monitored.

*Note:*

Further general Regulations of the country, where the vessel is registered, are to be monitored.

2.2.1.2. Inland navigation vessels' requirements are in general. On the request of Owner's or in relation with the manufacturer's reference for special equipment, other requirements may have to be observed for particular vessel types.

**2.3. Hull structure****2.3.1. General**

2.3.1.1. General visual inspection of the main structural elements of the hull shall be surveyed, as far as reachable. Considering the vessel type, the age and general state, Ballast tank, storage and engine rooms are to be inspected haphazardly. The Surveyor is permitted to perform further examinations where damages or extreme wastage affecting the Class are suspected, as well as thickness measurements, if necessary.

2.3.1.2. The rudder and maneuvering arrangement and the anchor equipment are to be checked for visible damages. For the related machinery and for operability, see 2.4.1.1.

2.3.1.3. The upper deck foundations and their base of special equipment shall be looked over for damages.

2.3.1.4. The Surveyor can open the ballast tanks for visual examination considering the vessel's age, mostly in case of coating deterioration or unnecessary wastage which has already been scrutinized at prior surveys.

Maintenance of Class is questionable if the coating in such ballast tanks is found to be in poor condition, along with thickness measurements which is being examined at annual intervals, and carried out as measured necessary. In case of a repair only approved coating is applicable if coating is to be partly or totally restored. The documentation needs to be done on the whole working procedure including the surface preparation.

2.3.1.5. Considering the vessel's age and available information about service conditions, compartments and rooms which are not normally available or if available only after special preparations, may be needed to be unfastened for inspection.

2.3.1.6. Bulkhead and hull doors, ramps and any openings in the outer shell, hatches and covers, bow, side and stern doors hatches and covers, must be inspected considering structural integrity as well as tightness and operability from all ends.

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

- a. All hinges and the pertinent hydraulic cylinders in way of their securing points;
- b. All securing elements of the locking devices and stoppers

The Surveyor where considered necessary can carry out in addition crack tests at structural members of bow, side and stern doors.

Basically, the crack tests will cover:

- a. Major joining welds and their interfacial areas both on the vessel's hull and on the door.
- b. Highly stressed areas in way of the centres of rotation of the hinges
- c. Highly stressed areas of the locking devices and their stoppers
- d. Repair welding

In order to identify the crack the dye penetration method or the magnetic particle examination method is to be used, and a test procedure is to be planned.

#### 2.3.2. Dry dock survey

A dry dock survey shall be completed when the vessel is allowed with the range of navigation R100 to R200, Hull plates before protective application, appendages, discharge valves, river chests, etc needs to be inspected. The Surveyor can request for thickness measurements in case of any doubt.

## **2.4. Machinery**

### 2.4.1. General

2.4.1.1. The following surveys and operational checks needs to be focused for the machinery including electrical installations:

- a. All Purpose examination of machinery and boiler rooms, with special observation to the propulsion system, the auxiliary engines, possible fire and explosion sources, and checking of emergency exits as to their free passage
- b. External inspection of boilers and pressure vessels, with their appliances and safety devices. For details regarding boilers,
- c. Examination and checking of the remote control, quick closing/ stopping devices of pumps, valves, ventilators, etc.
- d. Haphazard checking of the remote control and automation equipment
- e. Examination and functional checking of the main and auxiliary steering gear, including their appliances and control systems
- f. Relevant checking of all communication systems between bridge and machinery/boiler and steering gear rooms
- g. Examination of the bilge system, including remote control actuators and bilge filling level monitors
- h. Inspection of the main and emergency power supply systems, including the switch gear and other important electrical installations
- i. Examination of explosion-proof installations

- j. Haphazard inspection and checking of essential equipment to the Surveyor's discretion

#### 2.4.1.2. Fire extinguishing systems

- a. It is needed to inspect or test the following items/systems, where applicable:
- b. Fire mains system, including hoses and nozzles
- c. Gas fire extinguishing system
- d. Dry powder fire extinguishing system
- e. Foam fire extinguishing system
- f. Sprinkler system, including water mist sprinkler system
- g. Water and/or foam drencher system
- h. Any other fixed fire extinguishing system provided
- i. Portable fire extinguishers, mobile fire extinguishers, including portable foam application units fire detection and alarm systems
- j. Emergency stops for ventilation fans, boiler forced draft fans, fuel transfer pumps, fuel oil purifiers
- k. Quick-closing fuel valves
- l. Fire closures, fire dampers, etc.
- m. Fireman's outfits, if required

#### 2.4.1.3. Fire hoses and nozzles

The Surveyor inspects the provided fire hoses and nozzles in the testing of the fire mains system to.

#### 2.4.1.4. Fixed fire extinguishing systems

In every 2 years fixed fire extinguishing systems, such as gas, foam, dry powder or water mist systems, as well as gas cylinders are needed to be maintained. All hose assemblies shall be checked visually at the time of inspection. As per the manufacturer's instructions all synthetic rubber hose assemblies shall be replaced. According to Statutory Regulations, recognized specialized companies shall perform the installation, maintenance, monitoring and documentation of fixed fire extinguishing systems, for the engine room, pump room and all spaces containing essential equipment, such as switchboards, compressors, etc., and also for the refrigeration equipment, if there is any such thing exists.

#### 2.4.1.5. Portable and mobile fire extinguishers

In every 2 years an approved recognized expert company shall inspect transferable and mobile fire extinguishers. As per manufacturer's instructions or appropriate Rules, maintenance and final pressure testing shall be performed properly. The label of each extinguisher shall be proper labeled showing the date of inspection, name and signature of the approved or recognized specialized company. A procedure of the inspections and maintenance work performance is to be kept on board.

#### 2.4.1.6. Foam concentrate

Fixed foam fire extinguishing systems to concentrate Foam needs inspection not later than 3 years after filling into the system, and thereafter once in a year. The manufacturers or an independent recognized laboratory perform the inspection. Surveyor presents the Reports. Manufacturer's certificates declaring the properties of the foam Concentrate shall be presented whenever required for reference.

Renewal only can be done on the occasion of each Class renewal in order to concentrate the foam for the portable foam applicator. Observations shall be done on more extensive regulations of the Owner considering other examination gaps/performance of the tests.

**2.4.1.7. Measurements**

Usually the following measurements must be executed unless it is confirmed by valid protocols that they have been performed lately:

- a. Crank web deflection, main engine(s)
- b. Crank web deflection, auxiliary diesel engine(s) (where relevant)
- c. Axial thrust bearing clearance of shafting system(s)
- d. Axial thrust bearing clearance of main and auxiliary gas turbine rotors (where applicable)
- e. Insulation resistance of generators and electrical motors, including cabling and switch gear.

**2.4.1.8. Operational tests**

The following system components need to do operational tests additionally to the requirements under 2.4.1.1:

- a. Emergency generating set, including emergency switchboard (where applicable)
- b. Emergency bilge valve(s)
- c. Bilge, ventilation and monitoring systems for the carriage of dangerous substance drainage facilities of starting-air and control-air receivers
- d. General operational test of the machinery and electrical installation to display unrestricted operability, as indicated by the Surveyor

**2.4.1.9. Monitoring Equipment**

Programmed functions and the monitoring equipment of the machinery installation are to be done through operational trials under service conditions. The Surveyor shall inspect the bridge remote control equipment of the propulsion as per requirement.

**2.4.1.10. Machinery installations and safety systems on tankers**

The next installations and equipment on tankers need to be verified:

- a. Electrical equipment, in particular electrical installations in areas of explosion hazard, in which ignitable gas mixtures or water vapours may gather
- b. Level/overflow alarms
- c. Level indicators
- d. Tank venting systems
- e. Flame arresters
- f. Piping, valves and fittings, pumps
- g. Pump room equipment, including ventilation system
- h. Fire-extinguishing equipment
- i. Pressure/vacuum relief valves

The following added inspections on gas tankers must be performed:

- a. Venting system of cargo tanks and holds spaces
- b. All gastight bulkhead penetrations including gastight shaft sealing, if provided

Cargo handling control and safety systems, if possible, such as:

- a. Emergency shutdown valves at shore connections and tanks
- b. Control, alarm and safety systems monitoring the pressure in cargo tanks, cargo piping and hold spaces
- c. Cargo tanks level gauging including alarm and safety functions
- d. Cargo temperature monitoring systems
- e. Control, alarm and safety systems of cargo compressors and cargo pumps
- f. Gas detection equipment including indicators and alarms in operation
- g. Ventilation systems of all spaces in cargo area
- h. Inert gas or dry air installations in operation, including the means for preventing backflow of cargo vapour to gas safe areas
- i. Gas tightness of wheelhouse doors and windows
- j. Sealing arrangement of tank/tank domes, penetrating decks/tank covers, of portable and permanent drip trays or insulation for deck protection in the event of cargo leakage

#### 2.4.1.11. Installations under pressure

For steam boiler installations, thermal oil plants and pressure vessels see Section 6.

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## SECTION 3 CLASS RENEWAL SURVEYS

### Contents

3.1. General.....	65
3.2. Hull and hull equipment.....	65
3.3. Machinery.....	70
3.4. Electrical installations.....	72
3.5. Pipes in tanks.....	72
3.6. Fire extinguishing and fire alarm systems.....	72
3.7. Spare parts.....	73
3.8. Trials.....	73
3.9. Periodical surveys of propeller shafts and tube shafts, propellers and other systems .....	73
3.10. Survey performance of propeller shafts and tube shafts, propellers and other systems.....	75
3.11. Inert gas systems .....	77

### 3.1. General

#### 3.1.1. Scope

- 3.1.1.1. Character of Class period at the intervals performs the Class Renewal Surveys, which are also known as special surveys.
- 3.1.1.2. IRS may grant the exceptional cases extension of the Class period on request, see Chapter 3 Section 1.8
- 3.1.1.3. Class renewals for hull are figured in the series I, II, III, etc. Regarding their scope, see 3.2.
- 3.1.1.4. A Class Renewal Survey may be performed in quite a few parts. During the Class period the survey may be commenced at the last year. The total survey period of the Class Renewal Survey shall not exceed 12 months considering 1.1.2, except under special conditions and by prior agreement from IRS.
- 3.1.1.5. The Class Renewal Survey's period of Class will begin from the following day, after which the previous Class finishes and it has to be complete within the 3 months prior that date. In case of extension of validity of Class Certificate, the phase of Class will begin the following day after which the extension period finishes and the date, on which the Class Renewal Survey has been completed, if this is the case more than 3 months before expiry of the previous class.

#### 3.1.2. Class Renewal Survey performance

- 3.1.2.1. On occasion of the Intermediate Surveys, the following requirements of additional inspections and checks for Class Renewal shall be observed.
- 3.1.2.2. The Class Renewal Survey shall be occurred when the vessel is in dry dock or on a slipway unless a dry docking survey has already been performed within the permissible period, see 1.1.4 and 3.5 below.

### 3.2. Hull and hull equipment

#### 3.2.1. Class renewal I

- 3.2.1.1 Class Renewal I will have to be performed at the end of the first **Class period p**. For definition see Chapter 1, Section 1. 1.1.2.7.

#### 3.2.1.2 Conditions for surveys

Insulation of compartments intended for refrigerated cargoes is to be detached over the necessary extent for inspection by the Surveyor when examination of associated structure is required, considering the condition of the structure, unless constructional arrangements make such inspections possible without removing the insulation. If the Surveyor thinks necessary by, defective cement and asphalt covering are to be removed. The steel work is to be inspected before painting or before the cement or other coverings are renewed.

#### 3.2.1.3 Equipment for surveys

The Surveyor can definitely think one or more of the following fracture detection methods may be required:

- a. Radiography (X or gamma rays)

- b. Ultrasonic test
- c. Magnetic particle test
- d. Dye penetrant test

#### 3.2.1.4 Hull, general

As per the Surveyor's judgement, the survey on principle covers the whole hull structure, mainly 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 inspected, including the piping systems.

#### 3.2.1.5 Tank surveys

As per the Surveyor's discretion the ballast tanks are to be inspected, the procedure as outlined in 3.1.1.3 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 inspection 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.

#### 3.2.1.6 Tightness and pressure tests

Pressure tests shall be done in each compartment of the double bottom, cofferdams and all tanks, the boundary plating of which forms part of the vessel's main structure. Fuel oil, lubricating oil and fresh water tanks may be tested by filling with the respective 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. As per to the Surveyor, Air pressure testing of other spaces is to be agreed from case to case. The overpressure shall not exceed 0.2 bar and not be less than 0.1 bar.

#### 3.2.1.7 Thickness measurements

The Surveyor may require the rust to be removed from parts of the structure and thickness measurements to be carried out if he has reason to suspect inadmissible corrosion, see Section 7.

#### 3.2.1.8 Rudder, equipment, deck openings, etc.

It is also needed to do the class Renewal Survey which also covers other parts that are 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 inspected in mounted form, the rudder clearance to be measured and documented. The steering gear is needed to have 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.

## 3.2.1.9 Engine room structure

To survey the 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. Thickness measurements are to be performed where wastage is evident or suspected. For cargo pump rooms the survey consists of the verification of the good condition of:

- a. Access ladders
- b. Sumps
- c. All bulkheads for signs of leakage or fractures and in particular, the sealing arrangements of the bulkhead penetrations
- d. Piping systems, their pumps and auxiliaries pump room ventilation system including ducting, dampers and screens

## 3.2.1.10 Tankers

If cargo does not cause corrosion on tankers it may be inspected at alternate class renewal survey on the assumption that random checks done prove that the component parts are in satisfactory condition and no objections arise from the pressure and tightness testing as stated in [3.2.1.6] above. According to the IRS Rules for Part 9C Chapter 2 Section 8 during each Class renewal, the cofferdams of tankers are to be hydrostatically tested to the test pressure. At each alternate Class Renewal, the cargo tanks of tankers including gas collector, are to be tested by water and/or air pressure test as per stated in the Rules. The air tightness and pressure test has to be made according to [3.2.1.6] where the kind of testing which causes Corrosion shall be specified as per example the substances which cause corrosion in connection with water. At each Class renewal an internal examination and hydrostatic pressure test is done with the tankers which carrying acids and lye solution. As per the IRS Rules for Part 9C Chapter 2 Section 8. The test pressure to be fixed depending on the density of the cargo.

## 3.2.1.11 Gas tankers

Additionally the conditions given under 3.2.1.10, the renewal survey of these vessels consists of the following examinations, measurements and testing:

- a) Thickness measurements and non-destructive testing of cargo tanks:
  - i. During the thickness measurements examinations of cargo tanks the state of insulation is checked around the considered areas.
  - ii. According to an IRS approved programme and control during the internal survey of the cargo tanks a nondestructive testing procedure supplements is used.
  - iii. 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 tank plates, supports of pumps, ladders, pipe connections. It may be necessary to remove partially the tank insulation to perform these examinations.
  - iv. The Surveyor can consider the thickness measurements to certain level for tanks where anti-corrosion coatings are found to be in satisfactory condition.
- b) Testing of cargo tanks:

- i. Carriage Tanks of pressurized liquefied gases are to be tested like pressure vessels. On the other hand Cargo Gas tank needs an internal inspection on the occasion of subsequent Class Renewal in order to check the tanks are in satisfactory condition or have any corrosive effect upon their walls or not.
  - ii. Tightness of cargo tanks and domes is to be verified. On the other hand, for a vessel of less than fifteen years of age, for each tank separate tightness test is not required if the log book result is doubt free as to their tightness.
  - iii. Hydraulic or hydro-pneumatic testing needs to be done where the results of tanks examination and testing raise doubts as to the structural integrity or tightness of a cargo tank, or any major repairs are done to it.
- c) External examination of cargo tanks:
- i. All independent tanks are to be examined externally wherever practicable. The Surveyor inspects the insulation externally including any vapour or protective barrier where the insulation of a cargo tank or of the hull structure is available. The Surveyor if thought essential insulation is to be removed in part or entirely so that condition of the tank can be changed. Cargo tank supports, chocks and keys and the adjacent hull structure are to be inspected.
  - ii. In order to convince the Surveyor pressure relief valves of cargo tanks are to be opened up for examination, adjusted, sealed and tested.
  - iii. Other pressure relief devices in the tank spaces or the Pressure/vacuum relief valves are to be inspected according to their design, opened up, adjusted and tested in order to convince the Surveyor.
- d) Examination of the cargo area:
- i. Gastight bulkhead penetrations, including eventual gastight shaft sealings are to be checked. The venting system of cargo tanks and hold spaces is to be examined. All gastight bulkheads are to be inspected.
  - ii. It is needed to verify the Gas detection equipment, including indicators and alarms in operation, are in good working order.
  - iii. It is needed to check the inert gas or dry air installation in operation, including the means for preventing backflow of cargo vapour to gas safe areas.
  - iv. Sealing arrangements of tanks/tank domes, penetrating decks/tank covers, of portable and permanent drip trays or insulation for deck protection in the event of cargo leakage are to be verified.
  - v. Spool pieces and Hose used for segregation of piping systems for cargo, inert gas and bilge are to be inspected.

#### 3.2.1.12 Tankers, piping systems

At each Class renewal, the loading and discharge pipes of tankers are to be examined to 1,25 times the permissible working pressure. It is needed to verify the cargo piping, including valves and fittings, pumps as well as gas-freeing and safety equipment.

**Note**

The Owner is empowered to verify their compatibility with the chemical characteristics of the products transported when components are replaced in the cargo handling installation.

**3.2.2. Class Renewal II**

3.2.2.1. The second Class Renewal includes the requirements meant for Class Renewal I. In addition to the following investigations are to be performed.

3.2.2.2. The Surveyor verifies the structural parts behind ceilings, floor coverings and insulation as per requirement and depending on the general condition of the vessel. Please see also 3.2.3.2.

3.2.2.3. All tanks and cargo tanks are to be checked internally. The Surveyor shall haphazardly examine the fuel oil, lubricating oil and fresh water tanks. During the Class Renewal Survey in vessels aged 2p years and over, all ballast tanks are to be inspected for damages to the hull structural elements and to the coating. The procedure as outlined in Section 2, 2.3.1.4 shall be followed if relevant. Peak tanks see 3.2.1.5.

3.2.2.4. 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.

3.2.2.5. For thickness measurements, see Section 7.

**3.2.3. Class Renewal III and subsequent ones**

3.2.3.1. The third and the subsequent Class renewals requirements are those of Class Renewal II. In addition to, the following inquiries are to be carried out.

3.2.3.2. As per the Surveyor's specification 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 to enable the steel structure to be checked in detail. As per the Surveyor's discretion for Class Renewals III and subsequent ones the inner bottom ceilings shall be partially removed to enable their assessment. For Class Renewals IV and subsequent ones the inner bottom ceilings are to be entirely detached and the tank top is to be cautiously cleaned in order to enable proper assessment of the tank top's condition. As per the Surveyor's requirement the wall lining underneath windows in the outer shell needs to be elevated so that the structure behind may be verified.

3.2.3.3. As per the Surveyor's discretion all tanks including cargo tanks the fuel oil, lubricating oil and fresh water tanks are to be examined internally and tested in accordance with the requirements, see also 3.2.2.3. If relevant in the case of ballast tanks the procedure as outlined in Section 2, 2.3.1.4 shall be followed, if applicable. Peak tanks see 3.2.1.5.

3.2.3.4. IRS empowers that the rudder body shall be verified. The connections to the rudder stock and pertinent securing devices are to be examined. Clearance needs to be checked. The rudder stock is to be inspected as far as accessible. The stock is to be dismantled if considered necessary in view of findings during this external inspection. In way of the bearings, stock and pintle are to be examined for corrosion.

3.2.3.5. The weight of the anchors is to be checked.

### 3.3. Machinery

#### 3.3.1. General

The scope of all Class Renewal Surveys related to the machinery including electrical installations is alike except for individual machinery components as indicated in the following. The indications according to IRS need an observation if the continuous Class Renewal system is applied. The Class Renewal Survey includes the surveys and checks in Section 2.4.

#### 3.3.2. Surveys requiring dry docking

The river inlet and discharge valves are to be inspected as to their condition and to be opened up and overhauled once within the Class period while the vessel is in dry dock. Bow thrusters and positioning equipment shall go through a general survey and to trials upon floating of the vessel.

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

#### 3.3.3. Propulsion system and auxiliaries

##### 3.3.3.1. General

Examination of the propulsion system is mainly to cover:

- a) Intermediate shafts and bearings, including thrust bearings
- b) Gearing
- c) Mechanical and flexible couplings
- d) Turning gear
- e) The main propulsion engines see 3.3.3.2.

Due to negative inspection results, if necessary, 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 shall be renewed.

##### 3.3.3.2. Main propulsion diesel engines

The Surveyor may inspect and check the following components in the dismantled condition wherever is required:

- a) Cylinders, cylinder covers, pistons, piston rods and bolts, cross heads, crankshaft and all bearings
- b) Camshaft, with drive and bearings
- c) Tie rods, frame, foundation and fastening elements
- d) At the presence of the surveyor, injection system, attached pumps and compressors, superchargers, suction and exhaust lines, charging air coolers, filters, monitoring, control, protective and safety devices, starting, reversing and maneuvering equipment Class Renewal Survey of the main engine can be made during the main overhaul subject.

#### **Note**

Replacement and dismantling of main and crank bearings may be delayed until the service life limits have been reached in case of medium speed diesel engines.

## Auxiliary engines

The survey scope is same for all auxiliary engines as it is to the main engines. Upon examination of the maintenance protocols a reduction in the scope of survey may be agreed to.

## 3.3.4. Auxiliary machinery, equipment and piping,

## Survey performance

The Surveyor if thought necessary can examine the following components in dismantled condition:

- a) All pumps of the essential systems
- b) Air compressors, including safety devices
- c) Separators, filters and valves
- d) Coolers, pre-heaters
- e) Main and auxiliary steering gear
- f) Anchor and other windlasses, including drives
- g) Piping, pipe connections, compensators and hoses
- h) Emergency drain valves and bilge piping systems
- i) Tank filling level indicators
- j) Installations preventing the ingress of water into open spaces
- k) Freshwater distillation plant, where provided
- l) Oil purifier and sewage systems
- m) The Surveyor if thought necessary can examine and verify special equipment and installations in addition to systems and components, if included in the scope of Classification.

## 3.3.5. Gas tankers

## 3.3.5.1. Cargo handling installation

The Surveyor if thought necessary may verify Cargo piping system including valves, their monitoring devices, by opening them and removing their insulation. 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 order to convince the Surveyor, selected expansion bellows are to be dismantled, inspected internally and tested to their design pressure along with pressure relief valves which are needed to open up for examination, adjusted, sealed and tested. Cargo pumps, compressors, heat exchangers and other machinery including their prime movers which are a part of the cargo handling installation are to be verified.

## 3.3.6. Cargo handling control and safety installations

The cargo handling control and safety installations such as:

- a) Emergency shutdown valves at shore connections and tanks
- b) Control, alarm and safety systems monitoring the pressure in cargo tanks, cargo piping and hold spaces
- c) Cargo tanks level indicators including alarm and safety functions
- d) Cargo temperature monitoring systems control, alarm and safety systems of cargo compressors and cargo pumps are to be verified on good working.

**Note**

It is the responsibility of the Owner to verify their compatibility with the chemical characteristics of the products transported when components are replaced in the cargo handling installation.

**3.4. Electrical installations**

3.4.1. Propulsion machinery

The propulsion motors, the propulsion generators and exciters, specifically the windings of these machines, and their ventilating systems are to be inspected and tested if the vessel is propelled by electrical machinery. Checking of the electric switch gear for operability shall be covered also with the protective, safety and interlocking devices. The electric cables and their connections shall be checked. The insulation resistance of all electric machinery and equipment is to be verified.

3.4.2. Dynamic positioning systems

Operational tests shall be done for dynamic positioning systems, if any, including control systems.

3.4.3. Auxiliary machinery and systems

The electrical machinery and equipment, the generators, the emergency motors, the switch gear, its protective and interlocking devices and the cable network are to be examined externally. The remote stopping system, navigation lights, alarms, etc. are to be inspected for proper operation. It is needed to check the condition of safety electrical equipment for the dangerous goods vessels as the dangerous goods can be explosive when it comes in contact with atmospheres especially in cargo area. The insulation resistance is to be measured.

3.4.4. 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.

**3.5. Pipes in tanks**

3.5.1. General

As per the requirement the Surveyor may carry out the hydraulic tests as well as external examination where pipes are led through tanks. Thickness measurements may be required depending on the results.

**3.6. Fire extinguishing and fire alarm systems**

3.6.1. General

The Surveyor needs the proof that the entire fire extinguishing equipment is in operative and satisfactory condition. On every Class Renewal Survey, the Surveyor, if required, shall test and inspect visually on the installation. According to the manufacturer's instructions or applicable codes Equipment (cylinders, bottles, fire extinguishers, etc.) has to be inspected by an approved or recognized company. Reports of these inspections shall be available to the Surveyor. Emergency exits/escapes are to be examined.

**3.7. Spare parts**

## 3.7.1. General

Spare parts for the main propulsion and the essential equipment shall be available on board, documented and sustained in a corresponding list in order to restore machinery operation and maneuvering capability of the vessel in case of damage.

**3.8. Trials**

## 3.8.1. General

The Surveyor shall be pleased that the entire machinery installation including electrical, steering gear and special equipment are operable without any restrictions on completion of the Class renewal surveys. In case of doubt, trials and/or operational tests may be required.

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

## 3.9.1. General

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 particularly restricted is defined in 3.10.

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

- a) Normal survey
- b) Modified survey
- c) Partial shaft survey

## 3.9.2. Normal survey for propeller shafts and tube shafts

3.9.2.1. Where the propeller shafts and tube shafts are:

- a) Fitted with continuous liners, or
- b) Protected against corrosion, or
- c) Mechanically grease-lubricated, or
- d) Fitted with approved oil sealing Glands, or
- e) Made of corrosion resistant materials, or
- f) Of increased corrosion allowance to IRS satisfaction the interval of survey is to be 5 years possibly in connection with the dry dock survey, in any of the following three cases:
  - g) The propeller is fitted to a keyed shaft taper, or
  - h) The propeller is fitted keyless to the shaft taper, or
  - i) 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-vicious inspection shall be done at every survey following 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 shall be approved by IRS.

3.9.2.2. In order to permit the entire examination propeller shafts and tube shafts are to be satisfactorily drawn. For further details see 3.10.2.2. For oil lubricated arrangement, the shaft shall not be drawn at the normal survey, provided that all exposed areas of the after shaft area as described in 3.9.2.1 are checked by an approved crack detection method without drawing of the shaft, where:

- a) The clearances and wear down of the bearings
- b) The records of lubricating oil analysis, oil consumption
- c) The visible shaft areas are inspected and found pleasing. Lubricating oil controls are to be performed as specified in 3.9.3.2. For further details see 3.10.2.3. Where any doubt exists regarding the findings of the above, the shaft is to be sufficiently drawn to permit an entire examination.

3.9.2.3. The crack detection test of the aft coupling flange fillet area of the shaft may be dispensed where the propeller is fitted on a solid flange coupling at the end of the shaft according to proven designs and agreement of IRS.

### 3.9.3. Modified survey for propeller shafts and tube shafts

3.9.3.1. According to IRS a modified survey instead of the normal survey at **alternate period** for single and multi-shafting arrangements shall be accepted, probably in connection with the dry dock survey, at the most, subject to:

- a) The shaft is fitted with oil lubricated bearings and oil sealing Glands, or it is mechanically grease-lubricated
- b) The shaft and its fittings are not exposed to corrosion
- c) New oil seals may be fitted without removal of the propeller (except in the case of keyed propeller)
- d) The design details are approved
- e) And provided that the clearances of the aft bearing are found in order and the lube oil and the oil sealing arrangements have proved effective in any of the following three cases:
- f) Where the propeller is keyed on the shaft taper and suitable crack-prevention measures are taken, or
- g) Where the propeller is fitted to a solid flange coupling at the end of the shaft, or
- h) 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.

3.9.3.2. The shaft is to be satisfactorily drawn to permit examination of the aft bearing contact area of the shaft. For further details see 3.10.3.2. Drawing of the shaft to expose the aft bearing contact area of the shaft may not be required where a lubricating oil analysis is performed regularly at intervals not exceeding 6 months, and the oil utilization 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:

- a) Water content
- b) Chloride content
- c) Content of bearing metal particles
- d) Oil aging (resistance to oxidation)

Oil samples should be taken under service conditions. For further details see 3.10.3.3. Where any doubt exists regarding the findings of the above, the shaft is to be sufficiently drawn to permit an examination according to 3.10.2.2.

#### 3.9.4. Propellers

According to the Surveyor's judgment, depending on the findings, the propellers as well as the remote and local control gear of controllable pitch propellers shall be surveyed during normal or modified surveys of the propeller shafts and tube shafts.

#### 3.9.5. Other systems

According To IRS other systems for main propulsion purposes, such as rudder and steering propellers, pod propulsion systems, pump jet units, etc., shall have the same survey intervals as propeller shafts and tube shafts. The scope and extent of the surveys will be defined by IRS.

### 3.10. Survey performance of propeller shafts and tube shafts, propellers and other systems

#### 3.10.1. General

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

#### 3.10.2. Normal survey for propeller shafts and tube shafts

##### 3.10.2.1. General

The prerequisites are defined in 3.9.2. It is distinguished between:

- a) survey with drawing of the shaft
- b) survey without drawing of the shaft

##### 3.10.2.2. Survey with drawing of the shaft

The scope of normal survey consists in the following:

- a) A visual inspection shall be done of all parts of the shaft especially 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. Dismantling of propeller and key, examination of the propeller fit shall be performed, where fitted. A non-destructive examination by an approved Crack detection method of the aft end of the cylindrical 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 or an examination of the bearing clearances and/or wear down before dismantling and after reassembling of the shaft with recording of the values measured shall be carried out.
- b) Overhaul of the shaft sealing Glands according to manufacturer's instructions (sealing rings, liners, etc.)

##### 3.10.2.3. Survey without drawing of the shaft

The scope of normal survey without drawing of the shaft for oil lubricating arrangement where the prerequisite as defined in 3.9.2.2 consists in the following:

- a) Examination of all accessible parts of the shaft including the propeller connection to the shaft

- b) The area which is supposed to be examined shall be adequately uncovered, if it is required then by shifting of the propeller shaft or backing-off of the propeller the area shall be exposed. Non-destructive examination shall be executed by an approved crack detection method of the aft end of the cylindrical 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 propellers.
- c) Examination of the bearing clearances, respectively wear down of the aft bearing – overhaul of the shaft sealing Glands according to manufacturer's instructions (sealing rings, liners, etc.)
- d) Examination of the records of all regularly carried out lubricating oil analyses
- e) The shaft shall be re-examined entirely if the records of the oil consumption show doubts regarding the findings. 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 agreement of IRS. See also 3.9.2.3.

### 3.10.3. Modified survey for propeller shafts and tube shafts

#### 3.10.3.1. General

The prerequisites are defined in 3.9.3. It is distinguished between:

- a) Survey with exposing the aft bearing contact area of the shaft
- b) Survey without exposing the aft bearing contact area of the shaft

#### 3.10.3.2. Survey with exposing the aft bearing contact area of the shaft

The scope of the modified survey consists in the following:

- a) Drawing the shaft to expose the aft bearing contact area of the shaft
- b) Examination of the forward bearing as far as possible and of all accessible parts of the shaft including the propeller connection to the shaft
- c) Examination and overhaul of the oil sealing Glands according to manufacturer's instructions (sealing rings, liners, etc.)
- d) Examination of the bearing clearances and/or wear down of the shaft with recording of the values measured
- e) Examination of the lubricating oil analysis and consumption to be within permissible limits
- f) For keyed propellers, performing a nondestructive 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, examination of the propeller fit Where doubts exist regarding the findings, the shaft is to be further dismantled, respectively drawn.

#### 3.10.3.3. Survey without exposing the aft bearing contact area of the shaft

Where the prerequisites as defined in 3.9.3.2 apply, the scope of the modified survey without exposing the aft bearing contact area of the shaft consists in the following:

- a) Examination and overhaul of the oil sealing Glands according to manufacturer's instructions (sealing rings, liners, etc.)
- b) Examination of the bearing clearances and/or wear down of the shaft with recording of the values measured
- c) A nondestructive examination shall be performed by an approved crack detection method of about one third of the length of the taper from the large end for keyed propeller. In order to carry out this further dismantling and

examination of the propeller fit is required along with the survey which shall include the following:

- i. Examination of the records of all regularly carried out lubricating oil analyses
- ii. Examination of the records of the oil consumption where doubts exist regarding the findings, the shaft is to be further dismantled, respectively drawn.

#### 3.10.4. Propellers

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

3.10.4.2. As per the Surveyor's judgment damages, such as cracks, deformation, cavitation effects, etc. shall be reported and repaired. Controllable pitch propellers shall be checked for oil leakages. The function of the controllable pitch propellers has to be checked. According to manufacturer's instructions the maintenance has to be checked.

#### 3.10.5. Other systems

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

### 3.11. Inert gas systems

#### 3.11.1. General

According to the IRS's survey programme Inert gas installations of the cargo tank area of tankers are to be tested as to their operability in, at intervals of nominally 2.5 years, preferably on the occasion of each Class Renewal and intermediate survey.

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## SECTION 4 NON-PERIODICAL SURVEYS

### Contents

4.1.	Damage and repair surveys .....	79
4.2.	Voyage repairs and maintenance .....	79
4.3.	Conversion surveys.....	79
4.4.	Extraordinary surveys .....	80
4.5.	Survey for towage or voyage over sea .....	80

#### 4.1. Damage and repair surveys

Every time the vessel's hull and machinery, electrical installations, Classification Covered special equipment installations if suffered a damage which might affect validity of Class, or if damages have occurred as a consequence of an average or some other unusual event, damage and repair surveys fall due, see also Section 2, 2.6.3.1

##### 4.1.1. Damage and repair surveys performance

4.1.1.1. The automatic/ remote-control systems, etc., the damaged parts shall be made available for inspection in such a way that the kind and level of the damage can be methodically scrutinized and found out Where damage has occurred to the vessel's hull, machinery including electrical installations or special equipment and its installations, please refer to the Section 2, 2.6.3.1 In the case of grounding, dry docking or, alternatively, an in-water survey is required.

4.1.1.2. As per the Surveyor's approval the repair measures shall give the possible confirmation of the Class without reservations upon closing of the repairs. In general, a Class confirmation with conditions of Class, e. g. in the case of a preliminary repair ("emergency repair"), needs to be approved by IRS's Head Office or IRS's representative.

4.1.1.3. Based on the latest experience and instructions of IRS surveys shall be conducted in the course of repairs. In exceptional cases opinion is to be attained from IRS's Head Office or Society's representative, in particular where doubts exist as to the cause of damage.

4.1.1.4. In the case of repairs and/or alternate of parts for older vessels the construction Rules need to be continued as much as applicable. It shall be focused to Classification during the Construction period. This is not applicable in the case of modifications required to the structure as per the new information of damage analyses, with a view to avoiding repetition of similar damages.

4.1.1.5. Regarding the materials employed and certificates required, the requirements for new buildings are applicable. See Chapter 1, Section 2, 2.6.4.

4.1.1.6. Regarding corrosion damages or excessive wastage beyond allowable limits that affect the vessel's Class, see Section 7.

#### 4.2. Voyage repairs and maintenance

IRS empowers that a complete repair procedure needs to be performed by a riding crew during a voyage where repairing of hull, machinery or equipment may affect class. According to the recommended manufacturer's procedures and established practice which does not require any Society approval, maintenance and repair to hull, machinery, special equipment and its installations shall not be included. Though, any kind of maintenance repair and overhauls which affects or may affect Class shall be noted in the vessel's log and submitted to the attending Surveyor for use in determining further survey requirements.

#### 4.3. 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, IRS's approval is to be requested as in the case of new buildings and surveys are to be carried out, as described

in Chapter 1, Section 2, 2.6.4. A new or amended Class designation will be assigned, where necessary.

**4.4. Extraordinary surveys**

IRS empowers the right to require extraordinary surveys to be held independently of any regular surveys. Such surveys may become essential for examining the vessel's technical condition and are known as a part of IRS's quality assurance system.

**4.5. Survey for towage or voyage over sea**

A certificate of towage or voyage over sea may be issued upon satisfactory survey which is fixed by IRS in agreement with the provisions of the General Terms and Conditions according to the towing or voyage over sea.

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## SECTION 5 BOTTOM SURVEYS

### Contents

5.1. Dry dock surveys .....	82
5.2. In-water surveys .....	82

**5.1. Dry dock surveys**

5.1.1. Generally in Inland navigation vessels a bottom survey is done once during the Class period. Mainly, Class Renewal includes a bottom survey in dry-dock.

5.1.1.1. Intermediate surveys have to be carried out in dry dock in the following cases:

- a) The vessel's shell is bolted, at the Surveyor's discretion
- b) The vessel's age exceeds 20 years, at the Surveyor's discretion
- c) The vessel's age exceeds 20 years and the service notation granted is tanker for transport of dangerous goods
- d) The vessel is granted with the navigation range. **R100 to R200**, when it sails regularly in salt or brackish waters.

In order to perform each bottom survey as set by the Classification requirements an IRS's Surveyor shall be called to attend.

5.1.2. Performance of dry dock surveys

5.1.2.1. General

In order to do the survey, the vessel needs to be placed on such a high and secure blocks so that all required inspections can be performed in a satisfactory manner. It may be required to clean the bottom and outer shell and/or remove rust from some areas to the Surveyor's satisfaction.

5.1.2.2. Hull bottom survey

Hull bottom 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.

5.1.2.3. Steering gear

The steering gear needs an operational trial. The rudder, rudder couplings and bearings, as well as stocks and pintles, needs to be surveyed properly in its position. The rudder clearance is to be measured and shall be documented. If thought required in view of the inspection results, the rudder or parts of the steering gear will have to be took apart. Bow thrusters are normally to be examined in its position.

5.1.2.4. Machinery and propulsion systems

River inlet and discharge valves, special equipments, if there is any, need to be opened up and repaired once within a period of Class. For propeller(s), propeller shaft(s), stern tube(s), see Section 3, 3.9.

**5.2. In-water surveys**

5.2.1. General

As per the preliminary agreement with IRS, in particular circumstances, in-water survey shall be performed to a level, may be performed under the following conditions.

5.2.2. Approval

According to IRS's procedures, the diving firm assisting in in-water surveys shall be approved by IRS for this purpose.

#### 5.2.3. Performance of survey

5.2.3.1. Underwater parts need to be surveyed and/or relevant maintenance work is to be performed with the help of a diver whose performance is managed by a surveyor using an underwater camera with monitor, communication and recording systems if not accessible from outside with the help of the vessel's trim and/or heel.

5.2.3.2. Surveys of the underwater body need to be performed in absolutely 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.

5.2.3.3. The Surveyor shall get the reliable technical information of the underwater pictures on the surface monitor screen so that he can judge the parts and/or the areas properly.

5.2.3.4. Documentation suited for video reproduction including voice is to be made available to IRS.

#### 5.2.4. Additional examinations

The Surveyor may demand individual parts of the underwater body to be additionally examined from inside where, for example, grounding is assumed to have taken place. If damages are found during the in-water survey which can be assessed reliably only in dry-dock or need instant repair, the vessel is to be dry docked. If the coating of the underwater body is in a condition which may cause rust damages affecting vessel's Class to occur before the next dry docking, the vessel needs to be dry docked also.

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## SECTION 6 INSTALLATION UNDER PRESSURE

### Contents

1.1.	Steam boiler installations .....	85
1.2.	Thermal oil plants .....	86
1.3.	Pressure vessels .....	86

**6.1. Steam boiler installations**

## 6.1.1. General

At Intermediate Survey and at Class Renewal Survey Auxiliary steam generators/boilers, external and internal examinations are to be performed.

## 6.1.2. External inspection performance

6.1.2.1. An Inspection is needed to be done on the operability and general condition of the entire boiler, as well as its valves and fittings, pumps, piping, insulation, foundation, control and regulating systems and its protective and safety equipment.

**Note**

Observation needs to be done extensively at Regulations of the country where the vessel is registered.

6.1.2.2. In detail, the following items are to be examined:

- a) The entire steam boiler plant for leakages
- b) The condition of the insulation
- c) The functioning of the indication, control and safety equipment
- d) The remote controls for the shut-off and discharge valves
- e) The leakage monitors for the heaters
- f) The emergency switch-off devices (oil firing, pumps)
- g) The safety switch-off devices for the oil burner
- h) Lighting, emergency lighting and labeling

## 6.1.3. Internal inspection performance

6.1.3.1. The Surveyor, if thought required, shall carry out a pressure examination of the internal side of the boiler by cleaning it on the water and flue gas sides as well as its outside surfaces by uncovering its walls.

6.1.3.2. Hydraulic tests may be needed if the design of the boiler does not permit an adequate internal inspection. As per the Surveyor's choice it is left that he wants to do the internal inspection supplemented by hydraulic tests or on account of the general condition/ appearance of the boiler.

6.1.3.3. Measurements shall be made using a recognized gauging method where there are doubts concerning the thickness of the boiler walls. Depending on the results, the permissible working pressure for future operation is to be decided. The hydraulic pressure test is to be performed to a test pressure of 1, 3 times the permissible working pressure. Only after repairs of major damages the test pressure shall be 1, 5 times the permissible working pressure. If the maximum permissible working pressure is less than 2 bars, the test pressure shall be at least 1 bar above the maximum permissible working pressure. In no case the test pressure should exceed the test pressure applied during the first inspection of the boiler after completion.

6.1.3.4. According to agreed procedures Steam pipes and heating coils shall be inspected.

## 6.1.4. Non periodical inspection

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

## 6.2. Thermal oil plants

### 6.2.1. General

6.2.1.1. Periodical surveys are also need to be done on Thermal oil plants. Thermal oil plants are to be subjected to external inspection and functional tests while in operation. At the Class Intermediate and Renewal Surveys evidence of constant usage of the thermal oil made by a competent testing institution, shall be provided.

### 6.2.1.2. Tightness and pressure test

At intervals of **p years, counting** from commencement of initial operation and perhaps in relation with Class Renewal Survey, tightness and pressure test of the whole plant to the tolerable working pressure is to be performed. A pressure test is to be performed to 1, 5 times the admissible working pressure exposing the following repairs and renewals of plant components to that.

### 6.2.2. Internal inspection performance

Every year the heating surfaces and, where appropriate; the combustion chamber at the time of internal inspection needs to be examined for contamination, corrosion, deformations and leakages.

### 6.2.3. External inspection performance

For external inspection performance, the following items are to be examined in detail:

- a) The entire thermal oil plant for leakages
- b) The condition of the insulation
- c) The functioning of the indication, control and safety equipment
- d) The remote controls for the shut-off and discharge valves
- e) The leakage monitors for the heaters
- f) The emergency switch-off devices (oil firing, pumps)
- g) The safety switch-off devices for the oil burner
- h) Lighting, emergency lighting and labeling

An appropriate testing institution shall check annually for continual usage of the thermal oil and accordingly Reference is to be made to the test reports. This is to be confirmed in the report.

#### **Note**

Observation needs to be done extensively at Regulations of the country where the vessel is registered.

## 6.3. Pressure vessels

### 6.3.1. General

6.3.1.1. In connection with Class Renewal Survey pressure vessels are to be examined internally and externally **every p years**, possibly. On the occasion of checking of the pertinent piping system, pressure vessels for which pressure [bar] times cubic capacity [l] is less than or equal to 200 need to be surveyed.

6.3.1.2. An approved non-destructive test methods and/or hydraulic pressure tests are to be performed where pressure vessels cannot be acceptably inspected internally and where their unobjectionable condition cannot be clearly stated during the internal inspection. The hydraulic pressure test is to be performed at a test pressure of 1, 5 times the maximum permissible working pressure. If the maximum permissible working pressure is less than 2 bars, then the test pressure should be at least 1 bar more than the maximum allowable working pressure. Pressure vessels constructed in accordance with non-Class standards need to be checked according to that standard. The test pressure shall in no case exceed the initial test pressure

6.3.1.3. Pressure vessels survey performance

According to the construction Rules, possibly in connection with a Class Renewal Survey, IRS, surveyed the Pressure vessels internally and externally **every p years**. According manufacturer instructions or applicable Standards CO<sub>2</sub> cylinders and other gas cylinders for fire extinguishing purposes including vessels for powder extinguishers need to be submitted to periodical survey. Recognized companies shall make these reports relative to these surveys have to be submitted to the surveyor. During maintenance and repairs at the system receivers in hydraulic or pneumatic control systems need to be inspected; air receivers with a product of pressure by cubic capacity:

During **each Class renewal**  $p \times I \geq 1000$  (**p in bar, I in litre**) need to be subjected to an internal inspection at least once. Depending on the findings the intervals between surveys, as referred, may be reduced.

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## SECTION 7 PERFORMANCE AND SCOPE OF THICKNESS

### Contents

7.1. Objectives of thickness measurements .....	89
7.2. Definitions.....	89
7.3. Scope and extent of measurements for Class Renewal Survey.....	91
7.4. Corrosion and wear tolerances .....	94
7.5. Reporting.....	95

## 7.1. Objectives of thickness measurements

### 7.1.1. General

7.1.1.1. Thickness measurements survey is a major part of the surveys which need to be performed for the maintenance of Class, and the study of these measurements is an important factor in the determination and scope of the repairs and renewals of the vessel's structure.

7.1.1.2. The limits of wastage which are considered for reinforcements / repair or renewal of steel structure takes into consideration , which are governed by the corrosion and wear tolerances. They are classified and determined by IRS, depending on the local conditions of the structural elements into:

- a) Criteria on longitudinal and buckling strength
- b) Criteria on local strength and pitting

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

7.1.1.3. In order to evaluate whether or not the values stipulated in the construction Rules are kept, taking into account the admissible corrosion tolerances, the thickness of structural elements is checked by measurements. Unless severe corrosion has occurred owing to particular service conditions, thickness measurements will not be mandatory until Class Renewal II, see Table 3.7.1 and Table 3.7.2.

7.1.1.4. According to the recognized methods and authorized personnel or companies thickness measurements need to be performed.

Note

*The specific guidelines of IRS give details about the scope of authorization.*

7.1.1.5. Rust and contamination needs to be removed from the components which are needed to be inspected. 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 control the process to the extent required.

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

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

## 7.2. Definitions

### 7.2.1. Ballast tank

A tank that is being primarily used for water ballast is known as ballast tank. A tank which is used for both cargo and water ballast will be treated as a ballast tank when substantial rust has been found in such tank, see 7.2.8

7.2.2. Spaces

Spaces are separate compartments such as holds and tanks.

7.2.3. 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

7.2.4. 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.

7.2.5. Transverse section

It is also applicable for the different vessels as well as relevant longitudinal where transverse section contains 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. For a transversely framed vessel, a transverse section includes adjacent frames and their end connections in way of transverse sections.

7.2.6. Representative tanks or spaces

The tanks which are expected to reflect the condition of other tanks or spaces of similar type, service and with similar corrosion protection systems are known as Representative tanks or spaces. Account should be taken of the service and repair history on board and identifiable suspect areas when representative tanks or spaces are selected.

7.2.7. Critical structural area

The 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 are known as Critical structural areas and if applicable, to be sensitive to cracking, buckling or corrosion which would weaken the structural integrity of the vessel.

7.2.8. Substantial corrosion

Substantial corrosion is an level of corrosion such that measurement of the corrosion pattern specifies wastage in excess of 75 % of allowable margins, but within permissible limits.

7.2.9. Suspect areas

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

7.2.10. Coating condition

Coating condition is defined as follows:

- a) Good: condition with only minor spot rusting
- b) Fair: condition with local breakdown at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for poor condition

- c) Poor: condition with general breakdown of coating over 20% or more of areas or hard scale at 10% or more of areas under consideration

#### 7.2.11. 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.

#### 7.2.12. Cargo area for dry cargo vessels The cargo area is that part

### 7.3. Scope and extent of measurements for Class Renewal Survey

#### 7.3.1. General

The thickness measurements required by the Rules consist of:

- a) Systematic thickness measurements, i.e. measurements of different parts of the structure in order to assess the overall and local strength of the vessel
- b) Measurements of suspect areas as defined in 7.2.9
- c) Additional measurements on areas determined as affected by substantial corrosion as defined in 7.2.8

#### 7.3.2. Main hull structural elements

In Class Renewal II and all subsequent ones, as applicable, the plate thickness of the main and essential longitudinal and transverse structural hull elements are to be examined by thickness measurements. The number of measurements depends on the vessel's maintenance condition is left to the Surveyor's judgment. The minimum constraints for thickness measurements at the time of Class Renewal Surveys are stated in Table 3.7.1 and Table 3.7.2, depending on the vessel's Class Renewal Survey number. Respective thickness measurements to decide the general level of corrosion are to be performed.

#### 7.3.3. Reduction of thickness measurement scope

In comparison with those stated in Table 3.7.1 and Table 3.7.2, the level of thickness measurements may be reduced, provided during the close-up examination the Surveyor satisfies himself that there is no structural reduction and the protective coating, where applied, continues to be effective. The Surveyor may accept a reduced program of thickness measurements in the corresponding areas when the structure is coated and the coating is found to be in good condition, as defined in 7.2.10. Other effective protective arrangements may also be considered. The requirements for close-up survey of tank vessels are stated in Table 3.7.3.

#### 7.3.4. Extension of thickness measurement scope

The Surveyor may stretch the scope of the thickness measurement as considered necessary. This applies particularly to areas with substantial corrosion. The number of thickness measurements is to be increased to determine the extent of substantial corrosion when thickness measurements indicate substantial corrosion, as defined in 7.2.8.

**Table 3.7.1: Requirements for thickness measurements at Class Renewal Survey  
General cargo vessels and other vessels**

Class renewal survey number			
Class renewal	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: <ul style="list-style-type: none"> <li>– selected deck plates</li> <li>– one transverse section</li> <li>– selected bottom/inner bottom plates</li> <li>– selected side shell plates</li> <li>– selected hatch covers and coamings<sup>1</sup></li> </ul>	Within the cargo length area or 0.5-L amidships: <ul style="list-style-type: none"> <li>– each exposed deck plate</li> <li>– two transverse sections</li> <li>– selected tank top plates</li> <li>– each bottom/inner bottom plates</li> <li>– all side shell plates</li> <li>– selected transverse and longitudinal cargo hold bulkheads<sup>1</sup></li> <li>– all hatch covers and coamings<sup>1</sup></li> </ul>	Within the cargo length area or 0.5-L amidships: <ul style="list-style-type: none"> <li>– each deck plate</li> <li>– three transverse sections<sup>3</sup></li> <li>– each bottom/inner bottom/tank top plate</li> <li>– all side shell plates</li> <li>– all transverse and longitudinal cargo hold bulkheads<sup>1</sup></li> <li>– all hatch covers and coamings<sup>1</sup></li> </ul>
		Outside the cargo length area: <ul style="list-style-type: none"> <li>– selected deck plates</li> <li>– selected side shell plates</li> <li>– selected bottom plates</li> </ul>	Outside the cargo length area: <ul style="list-style-type: none"> <li>– each deck plate</li> <li>– each side shell plate</li> <li>– each bottom plate</li> </ul>
	Collision bulkhead, forward machinery space bulkhead, aft peak bulkhead <sup>1,2</sup>		All transverse and longitudinal Bulkheads outside cargo hold area <sup>1,2</sup>
	In engine room <sup>2</sup> <ul style="list-style-type: none"> <li>– river chests</li> <li>– river water manifold</li> <li>– duct keel or pipe tunnel plating and internals</li> </ul>		
		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	
<sup>1</sup> Including plates and stiffeners. <sup>2</sup> 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. <sup>3</sup> The number of transverse sections maybe reduced at the Surveyor's discretion for vessels of length under 40m.			

**Table 3.7.2 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	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 3.7.3		
	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 <sup>1</sup>	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 <sup>1</sup> – all hatch covers and coamings <sup>1</sup>	Within the cargo length area: – each deck plate – three transverse sections in three different tanks <sup>3</sup> – each bottom/inner bottom plate – all side shell plates – all transverse and longitudinal cargo tank bulkheads <sup>1</sup> – all hatch covers and coamings <sup>1</sup>
		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 <sup>1,2</sup>		All transverse and longitudinal Bulkheads outside cargo length area <sup>1,2</sup>
	In engine room <sup>2</sup> –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	
<sup>1</sup> Including plates and stiffeners. <sup>2</sup> 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. <sup>3</sup> The number of transverse sections maybe reduced at the Surveyor’s discretion for vessels of length under 40m.			

7.3.5. Transverse sections

Selection of Transverse sections shall be taken place where largest corrosion rates are believed to occur or are revealed by deck plating measurements.

7.3.6. Ballast tanks

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

7.3.7. Substantial corrosion and suspect areas

The Surveyor may require thickness measurements to be performed already on the time of Class Renewal I, also outside the area of 0.5 L amidships where special reasons exist. The same applies in the case of conversion or repair of a vessel.

7.3.8. Hull equipment

The cross sectional areas of the anchor chain cables are to be determined in Class Renewal II and all subsequent Class renewals. The mean diameters of the anchor chain cables are to be determined by representative measurements, around 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 examined in Class Renewal III and all subsequent Class renewals. For permissible tolerances see 7.4.4.

**7.4. Corrosion and wear tolerances**

7.4.1. General

The respective hull structural elements will have to be restored where thickness measurements result in corrosion and wear values exceeding those stated in the following.

**Table 3.7.3 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 longitudinals / brackets in one tank <sup>1</sup> –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 longitudinals /brackets in two tanks <sup>1</sup> – selected bulkheads for survey of upper and lower parts <sup>1</sup> – 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 longitudinals /brackets in four tanks <sup>1</sup> – all bulkheads for survey of upper and lower parts <sup>1</sup> – three transverse sections selected in three representative cargo tanks, including all transverse sections in one representative cargo tank <sup>2</sup> – selected plates and stiffeners in all ballast tanks
<sup>1</sup> Including plates and stiffeners. <sup>2</sup> The number of transverse sections may be reduced at the Surveyor’s discretion for vessels of length under 40m.			

7.4.2. Longitudinal and buckling strength

IRS will decide the applicable criteria on longitudinal and buckling in general, if needed, on a case by case basis.

7.4.3. Local strength and pitting

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

7.4.3.2. The maximum permissible large surface reduction of plate thickness and web thickness of profiles should not exceed the values of corrosion additions as stipulated in IRS Rules for Hull where applicable.

7.4.3.3. 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 and beyond the calculated corrosion additions  $t_c$  may be accepted.

7.4.3.4. Anchor equipment Maximum permissible reduction of the mean diameter of chain links: 12%. Maximum permissible reduction in weight of anchors: 10%.

**7.5. Reporting**

7.5.1. General

IRS recommended appropriate reporting forms are to be used for recording thickness measurements. The report is to give the name of the vessel, the location of measurement, the thickness measured and the corresponding original thickness. In addition, there port shall consist of the date when the measurements were performed, 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 Surveyor shall verify and validate the report.