

Rules for the Classification of Inland Waterway Ships and for Conformity to Directive 2016/1629/EU as amended

Effective from 1 January 2023

Part A

Classification and Surveys

GENERAL CONDITIONS

Definitions:

"Administration" means the Government of the State whose flag the Ship is entitled to fly or under whose authority the Ship is authorised to operate in the specific case.

"IACS" means the International Association of Classification Societies.

"Interested Party" means the party, other than the Society, having an interest in or responsibility for the Ship, product, plant or system subject to classification or certification (such as the owner of the Ship and his representatives, the ship builder, the engine builder or the supplier of parts to be tested) who requests the Services or on whose behalf the Services are requested.

"Owner" means the registered owner, the ship owner, the manager or any other party with the responsibility, legally or contractually, to keep the ship seaworthy or in service, having particular regard to the provisions relating to the maintenance of class laid down in Part A, Chapter 2 of the Rules for the Classification of Ships or in the corresponding rules indicated in the specific Rules.

"Rules" in these General Conditions means the documents below issued by the Society:

- (i) Rules for the Classification of Ships or other special units;
- (ii) Complementary Rules containing the requirements for product, plant, system and other certification or containing the requirements for the assignment of additional class notations;
- (iii) Rules for the application of statutory rules, containing the rules to perform the duties delegated by Administrations;
- (iv) Guides to carry out particular activities connected with Services;
- (v) Any other technical document, as for example rule variations or interpretations.

"Services" means the activities described in Article 1 below, rendered by the Society upon request made by or on behalf of the Interested Party.

"Ship" means ships, boats, craft and other special units, as for example offshore structures, floating units and underwater craft.

"Society" or "TASNEEF" means Tasneef and/or all the companies in the Tasneef Group which provide the Services.

"Surveyor" means technical staff acting on behalf of the Society in performing the Services.

Article 1

1.1. The purpose of the Society is, among others, the classification and certification of ships and the certification of their parts and components. In particular, the Society:

- (i) sets forth and develops Rules;
- (ii) publishes the Register of Ships;
- (iii) issues certificates, statements and reports based on its survey activities.

1.2. The Society also takes part in the implementation of national and international rules and standards as delegated by various Governments.

1.3. The Society carries out technical assistance activities on request and provides special services outside the scope of classification, which are regulated by these general conditions, unless expressly excluded in the particular contract.

Article 2

2.1. The Rules developed by the Society reflect the level of its technical knowledge at the time they are published. Therefore, the Society, although committed also through its research and development services to continuous updating of the Rules, does not guarantee the Rules meet state-of-the-art science and technology at the time of publication or that they meet the Society's or others' subsequent technical developments.

2.2. The Interested Party is required to know the Rules on the basis of which the Services are provided. With particular reference to Classification Services, special attention is to be given to the Rules concerning class suspension, withdrawal and reinstatement. In case of doubt or inaccuracy, the Interested Party is to promptly contact the Society for clarification.

The Rules for Classification of Ships are published on the Society's website: www.tasneef.ae.

2.3. The Society exercises due care and skill:

- (i) in the selection of its Surveyors
- (ii) in the performance of its Services, taking into account the level of its technical knowledge at the time the Services are performed.

2.4. Surveys conducted by the Society include, but are not limited to, visual inspection and non-destructive testing. Unless otherwise required, surveys are conducted through sampling techniques and do not consist of comprehensive verification or monitoring of the Ship or of the items subject to certification. The surveys and checks made by the Society on board ship do not necessarily require the constant and continuous presence of the Surveyor. The Society may also commission laboratory testing, underwater inspection and other checks carried out by and under the responsibility of qualified service suppliers. Survey practices and procedures are selected by the Society based on its experience and knowledge and according to generally accepted technical standards in the sector.

Article 3

3.1. The class assigned to a Ship, like the reports, statements, certificates or any other document or information issued by the Society, reflects the opinion of the Society concerning compliance, at the time the Service is provided, of the Ship or product subject to certification, with the applicable Rules (given the intended use and within the relevant time frame).

The Society is under no obligation to make statements or provide information about elements or facts which are not part of the specific scope of the Service requested by the Interested Party or on its behalf.

3.2. No report, statement, notation on a plan, review, Certificate of Classification, document or information issued or given as part of the Services provided by the Society shall have any legal effect or implication other than a representation that, on the basis of the checks made by the Society, the Ship, structure, materials, equipment, machinery or any other item covered by such document or information meet the Rules. Any such document is issued solely for the use of the Society, its committees and clients or other duly authorised bodies and for no other purpose. Therefore, the Society cannot be held liable for any act made or document issued by other parties on the basis of the statements or information given by the Society. The validity, application, meaning and interpretation of a Certificate of Classification, or any other document or information issued by the Society in connection with its Services, is governed by the Rules of the Society, which is the sole subject entitled to make such interpretation. Any disagreement on technical matters between the Interested Party and the Surveyor in the carrying out of his functions shall be raised in writing as soon as possible with the Society, which will settle any divergence of opinion or dispute.

3.3. The classification of a Ship, or the issuance of a certificate or other document connected with classification or certification and in general with the performance of Services by the Society shall have the validity conferred upon it by the Rules of the Society at the time of the assignment of class or issuance of the certificate; in no case shall it amount to a statement or warranty of seaworthiness,

structural integrity, quality or fitness for a particular purpose or service of any Ship, structure, material, equipment or machinery inspected or tested by the Society.

3.4. Any document issued by the Society in relation to its activities reflects the condition of the Ship or the subject of certification or other activity at the time of the check.

3.5. The Rules, surveys and activities performed by the Society, reports, certificates and other documents issued by the Society are in no way intended to replace the duties and responsibilities of other parties such as Governments, designers, ship builders, manufacturers, repairers, suppliers, contractors or sub-contractors, Owners, operators, charterers, underwriters, sellers or intended buyers of a Ship or other product or system surveyed.

These documents and activities do not relieve such parties from any fulfilment, warranty, responsibility, duty or obligation (also of a contractual nature) expressed or implied or in any case incumbent on them, nor do they confer on such parties any right, claim or cause of action against the Society. With particular regard to the duties of the ship Owner, the Services undertaken by the Society do not relieve the Owner of his duty to ensure proper maintenance of the Ship and ensure seaworthiness at all times. Likewise, the Rules, surveys performed, reports, certificates and other documents issued by the Society are intended neither to guarantee the buyers of the Ship, its components or any other surveyed or certified item, nor to relieve the seller of the duties arising out of the law or the contract, regarding the quality, commercial value or characteristics of the item which is the subject of transaction.

In no case, therefore, shall the Society assume the obligations incumbent upon the above-mentioned parties, even when it is consulted in connection with matters not covered by its Rules or other documents.

In consideration of the above, the Interested Party undertakes to relieve and hold harmless the Society from any third party claim, as well as from any liability in relation to the latter concerning the Services rendered.

Insofar as they are not expressly provided for in these General Conditions, the duties and responsibilities of the Owner and Interested Parties with respect to the services rendered by the Society are described in the Rules applicable to the specific Service rendered.

Article 4

4.1. Any request for the Society's Services shall be submitted in writing and signed by or on behalf of the Interested Party. Such a request will be considered irrevocable as soon as received by the Society and shall entail acceptance by the applicant of all relevant requirements of the Rules, including these General Conditions. Upon acceptance of the written request by the Society, a contract between the Society and the Interested Party is entered into, which is regulated by the present General Conditions.

4.2. In consideration of the Services rendered by the Society, the Interested Party and the person requesting the service shall be jointly liable for the payment of the relevant fees, even if the service is not concluded for any cause not pertaining to the Society. In the latter case, the Society shall not be held liable for non-fulfilment or partial fulfilment of the Services requested. In the event of late payment, interest at the legal current rate increased by 1.5% may be demanded.

4.3. The contract for the classification of a Ship or for other Services may be terminated and any certificates revoked at the request of one of the parties, subject to at least 30 days' notice to be given in writing. Failure to pay, even in part, the fees due for Services carried out by the Society will entitle the Society to immediately terminate the contract and suspend the Services.

For every termination of the contract, the fees for the activities performed until the time of the termination shall be owed to the Society as well as the expenses incurred in view of activities already programmed; this is without prejudice to the right to compensation due to the Society as a consequence of the termination.

With particular reference to Ship classification and certification, unless decided otherwise by the Society, termination of the contract implies that the assignment of class to a Ship is withheld or, if already assigned, that it is suspended or withdrawn; any statutory certificates issued by the Society will be withdrawn in those cases where provided for by agreements between the Society and the flag State.

Article 5

5.1. In providing the Services, as well as other correlated information or advice, the Society, its Surveyors, servants or agents operate with due diligence for the proper execution of the activity. However, considering the nature of the activities performed (see art. 2.4), it is not possible to guarantee absolute accuracy, correctness and completeness of any information or advice supplied. Express and implied warranties are specifically disclaimed.

Therefore, except as provided for in paragraph 5.2 below, and also in the case of activities carried out by delegation of Governments, neither the Society nor any of its Surveyors will be liable for any loss, damage or expense of whatever nature sustained by any person, in tort or in contract, derived from carrying out the Services.

5.2. Notwithstanding the provisions in paragraph 5.1 above, should any user of the Society's Services prove that he has suffered a loss or damage due to any negligent act or omission of the Society, its Surveyors, servants or agents, then the Society will pay compensation to such person for his proved loss, up to, but not exceeding, five times the amount of the fees charged for the specific services, information or opinions from which the loss or damage derives or, if no fee has been charged, a maximum of AED5,000 (Arab Emirates Dirhams Five Thousand only). Where the fees charged are related to a number of Services, the amount of the fees will be apportioned for the purpose of the calculation of the maximum compensation, by reference to the estimated time involved in the performance of the Service from which the damage or loss derives. Any liability for indirect or consequential loss, damage or expense is specifically excluded. In any case, irrespective of the amount of the fees charged, the maximum damages payable by the Society will not be more than AED5,000,000 (Arab Emirates Dirhams Five Millions only). Payment of compensation under this paragraph will not entail any admission of responsibility and/or liability by the Society and will be made without prejudice to the disclaimer clause contained in paragraph 5.1 above.

5.3. Any claim for loss or damage of whatever nature by virtue of the provisions set forth herein shall be made to the Society in writing, within the shorter of the following periods: (i) THREE (3) MONTHS from the date on which the Services were performed, or (ii) THREE (3) MONTHS from the date on which the damage was discovered. Failure to comply with the above deadline will constitute an absolute bar to the pursuit of such a claim against the Society.

Article 6

6.1. These General Conditions shall be governed by and construed in accordance with United Arab Emirates (UAE) law, and any dispute arising from or in connection with the Rules or with the Services of the Society, including any issues concerning responsibility, liability or limitations of liability of the Society, shall be determined in accordance with UAE law. The courts of the Dubai International Financial Centre (DIFC) shall have exclusive jurisdiction in relation to any claim or dispute which may arise out of or in connection with the Rules or with the Services of the Society.

6.2. However,

- (i) In cases where neither the claim nor any counterclaim exceeds the sum of AED300,000 (Arab Emirates Dirhams Three Hundred Thousand) the dispute shall be referred to the jurisdiction of the DIFC Small Claims Tribunal; and
- (ii) for disputes concerning non-payment of the fees and/or expenses due to the Society for services, the Society shall have the

right to submit any claim to the jurisdiction of the Courts of the place where the registered or operating office of the Interested Party or of the applicant who requested the Service is located.

In the case of actions taken against the Society by a third party before a public Court, the Society shall also have the right to summon the Interested Party or the subject who requested the Service before that Court, in order to be relieved and held harmless according to art. 3.5 above.

Article 7

7.1. All plans, specifications, documents and information provided by, issued by, or made known to the Society, in connection with the performance of its Services, will be treated as confidential and will not be made available to any other party other than the Owner without authorisation of the Interested Party, except as provided for or required by any applicable international, European or domestic legislation, Charter or other IACS resolutions, or order from a competent authority. Information about the status and validity of class and statutory certificates, including transfers, changes, suspensions, withdrawals of class, recommendations/conditions of class, operating conditions or restrictions issued against classed ships and other related information, as may be required, may be published on the website or released by other means, without the prior consent of the Interested Party.

Information about the status and validity of other certificates and statements may also be published on the website or released by other means, without the prior consent of the Interested Party.

7.2. Notwithstanding the general duty of confidentiality owed by the Society to its clients in clause 7.1 above, the Society's clients hereby accept that the Society may participate in the IACS Early Warning System which requires each Classification Society to provide other involved Classification Societies with relevant technical information on serious hull structural and engineering systems failures, as defined in the IACS Early Warning System (but not including any drawings relating to the ship which may be the specific property of another party), to enable such useful information to be shared and used to facilitate the proper working of the IACS Early Warning System. The Society will provide its clients with written details of such information sent to the involved Classification Societies.

7.3. In the event of transfer of class, addition of a second class or withdrawal from a double/dual class, the Interested Party undertakes to provide or to permit the Society to provide the other Classification Society with all building plans and drawings, certificates, documents and information relevant to the classed unit, including its history file, as the other Classification Society may require for the purpose of classification in compliance with the applicable legislation and relative IACS Procedure. It is the Owner's duty to ensure that, whenever required, the consent of the builder is obtained with regard to the provision of plans and drawings to the new Society, either by way of appropriate stipulation in the building contract or by other agreement.

In the event that the ownership of the ship, product or system subject to certification is transferred to a new subject, the latter shall have the right to access all pertinent drawings, specifications, documents or information issued by the Society or which has come to the knowledge of the Society while carrying out its Services, even if related to a period prior to transfer of ownership.

Article 8

8.1. Should any part of these General Conditions be declared invalid, this will not affect the validity of the remaining provisions.

Part A
Classification and Surveys

Chapters **1 2 3 4 5**

Chapter 1	PRINCIPLES OF CLASSIFICATION AND CLASS NOTATIONS
Chapter 2	ASSIGNMENT, MAINTENANCE, SUSPENSION AND WITHDRAWAL OF CLASS
Chapter 3	SCOPE OF SURVEYS
Chapter 4	SERVICE NOTATIONS
Chapter 5	ADDITIONAL CLASS NOTATIONS

CHAPTER 1

PRINCIPLES OF CLASSIFICATION AND CLASS NOTATIONS

Section 1 General Principles of Classification

1	Principles of classification	17
1.1	Purpose of the Rules	
1.2	General definitions	
1.3	Meaning of classification, scope and limits	
1.4	Request for services	
1.5	Register of Ships	
2	Rules	18
2.1	Equivalence	
2.2	Effective date	
2.3	Novel features	
2.4	Interpretation	
2.5	Disagreement and appeal	
3	Duties of the Interested Parties	19
3.1	International and national regulations	
3.2	Surveyor's intervention	
3.3	Operation and maintenance of ships	
3.4	Use of measuring equipment and of service suppliers	
3.5	Spare parts	
3.6	Use of asbestos	

Section 2 Classification Notations

1	General	21
1.1	Purpose of the classification notations	
1.2	Types of notations assigned	
2	Main class symbol	21
2.1	General	
3	Construction marks	21
3.1	General	
3.2	List of construction marks	
4	Service notations	22
4.1	General	
4.2	Cargo ships	
4.3	Ships carrying liquid or gaseous cargo in bulk	
4.4	Ships carrying passengers	
4.5	Ships for dredging activities	
4.6	Working ships	
4.7	Non-propelled and assisted propulsion units	
4.8	Miscellaneous units	
4.9	High speed vessels	

5	Navigation and operating area notations	25
5.1	Navigation notations	
5.2	List of navigation notations	
5.3	Operating area notations	
6	Additional class notations	25
6.1	General	
6.2	Fire protection	
6.3	Grabloading	
6.4	Damage stability	
6.5	Shaft monitoring system (MON-SHAFT)	
6.6	In-water survey (INWATERSURVEY)	

CHAPTER 2

ASSIGNMENT, MAINTENANCE, SUSPENSION AND WITHDRAWAL OF CLASS

Section 1 Assignment of Class

1	General	29
	1.1	
2	New building procedure	29
	2.1 Ships surveyed by ^{Tasneef} during construction	
	2.2 Other cases	
	2.3 Documentation	
3	Ships classed after construction	30
	3.1 General	
	3.2 Ships classed with a recognized Classification Society	
	3.3 Ships not classed with a recognized Classification Society	
4	Date of initial classification	31
	4.1 Definitions	
5	Reassignment of class	32
	5.1	

Section 2 Maintenance of Class

1	General principles of surveys	33
	1.1 Survey types	
	1.2 Change of periodicity, postponement or advance of surveys	
	1.3 Extension of scope of survey	
	1.4 General procedure of survey	
	1.5 Appointment of another Surveyor	
2	Definitions and procedures related to surveys	34
	2.1 General	
	2.2 Terminology related to hull survey	
	2.3 Procedures for thickness measurements	
	2.4 Conditions for surveys	
	2.5 Access to structures	
	2.6 Equipment for surveys	
	2.7 Surveys during navigation and anchorage	
	2.8 Repairs and maintenance during voyage	
	2.9 Prompt and thorough repairs	
3	Certificate of Classification: issue, validity, endorsement and renewal	37
	3.1 Issue of Certificate of Classification	
	3.2 Validity of Certificate of Classification, maintenance of class	
	3.3 Endorsement of Certificate of Classification	
	3.4 Status of surveys and recommendations	

4	Class renewal surveys	38
	4.1 General principles	
	4.2 Normal system	
	4.3 Continuous survey system	
	4.4 Planned maintenance system (PMS) for machinery	
5	Other periodical surveys	39
	5.1 General	
	5.2 Hull and machinery ordinary surveys	
	5.3 Hull and machinery intermediate surveys	
	5.4 Bottom survey	
	5.5 Tailshaft survey	
	5.6 Boiler survey	
6	Occasional surveys	41
	6.1 General	
	6.2 Damage and repair surveys	
	6.3 Conversions, alterations and repairs	
	6.4 Quality System audits	
7	Change of ownership	41
	7.1 General	
8	Lay-up and re-commissioning	42
	8.1 General principles	

Section 3 Suspension and Withdrawal of Class

1	General	44
	1.1 Discontinuance of class	
	1.2 Suspension of class	
	1.3 Withdrawal of class	
	1.4 Suspension/withdrawal of additional class notations	

Appendix 1 Criteria for Longitudinal Strength of the Hull Girder

1	General	47
	1.1	
2	Calculation of transverse sectional areas of deck and bottom flanges of hull girder	47
	2.1	
3	Requirements for transverse section modulus of hull girder	47
	3.1	
4	Calculation criteria of section moduli of midship section of hull girder	47
	4.1	
5	Diminution limit of minimum longitudinal strength of ships in service	48
	5.1	

Appendix 2 Acceptance of Surveys with Different Intervals, Extent and Scope

1	General	49
	1.1	
2	Definition and symbols	49
	2.1	
3	Ships flying south American flags other than Brazil	49
	3.1	
4	Ships flying Brazilian flag	51
	4.1	
5	Ships with statutory Cargo Ship Certificate validity less than 10 years	52
	5.1	

CHAPTER 3

SCOPE OF SURVEYS

Section 1 Ordinary Survey

1	Principles of classification	57
	1.1 Purpose of the Rules	
2	Hull	57
	2.1 Scope	
	2.2 Hull and hull equipment	
	2.3 Cargo hatch covers and coamings, weather decks and ship side plating above the waterline	
	2.4 Suspect areas	
	2.5 Ballast tanks	
3	Machinery and systems	58
	3.1 General machinery installations	
	3.2 Boilers	
	3.3 Electrical machinery and equipment	
	3.4 Fire protection, detection and extinction	

Section 2 Intermediate Survey

1	General	60
	1.1	
2	Hull	60
	2.1	

Section 3 Class Renewal Survey

1	General	62
	1.1	
2	Hull and hull equipment	62
	2.1 Bottom survey	
	2.2 Decks, hatch covers and equipment	
	2.3 Holds and other dry compartments	
	2.4 Tanks	
	2.5 Thickness measurements	
3	Machinery and systems	65
	3.1 General	
	3.2 Main and auxiliary engines and turbines	
	3.3 Reduction gears, main thrust and intermediate shafts	
	3.4 Pumps and other machinery items	
	3.5 Systems in machinery spaces	
	3.6 Electrical equipment and installations	
	3.7 Controls	
	3.8 Fire protection, detection and extinction	

Section 4 Bottom Survey

1	General	69
	1.1	
2	Bottom survey in dry condition	69
	2.1 General requirements	
3	In-water survey	69
	3.1 General	

Section 5 Tailshaft Survey

1	Survey of tailshafts	71
	1.1 General	
	1.2 Complete survey	
	1.3 Modified survey	
2	Periodical survey of other propulsion systems	71
	2.1 Rotating and azimuth thrusters	
	2.2 Vertical axis propellers	
	2.3 Pump jet systems	

Section 6 Boiler Survey

1	Steam boilers	73
	1.1	
2	Thermal oil heaters	73
	2.1	

CHAPTER 4

SERVICE NOTATIONS

Section 1 General

1	General	77
	1.1	
2	Service notations subject to additional surveys	77
	2.1	

Section 2 Tankers

1	General	78
	1.1	
2	Ordinary survey - Hull items	78
	2.1 Hull and weather decks	
	2.2 Cargo pump rooms and pipe tunnels	
	2.3 Cargo and ballast tanks	
3	Ordinary survey - Cargo machinery items	78
	3.1 Cargo area and cargo pump rooms	
	3.2 Instrumentation and safety devices	
	3.3 Fire-fighting systems in cargo area	
	3.4 Inert gas system	
4	Intermediate survey - Hull items	80
	4.1 Weather decks	
	4.2 Cargo and ballast tanks	
5	Intermediate survey - Cargo machinery items	80
	5.1 General	
	5.2 Cargo area and cargo pump rooms	
	5.3 Inert gas system	
6	Class renewal survey - Hull items	80
	6.1 Scope of Survey	
	6.2 Overall and close-up surveys	
	6.3 Thickness measurements	
	6.4 Tank testing	
	6.5 Cargo area and cargo pump rooms	
7	Class renewal survey - Cargo machinery items	81
	7.1 Cargo area and cargo pump rooms	
	7.2 Fire-fighting systems in cargo area	
	7.3 Inert gas system	

Section 3 Tankers Carrying Chemical Substances

1	General	84
	1.1 Application	

2	Ordinary survey - Hull items	84
	2.1 Hull and weather decks	
	2.2 Cargo pump rooms and pipe tunnels	
	2.3 Ballast tanks	
3	Ordinary survey - Cargo machinery items	84
	3.1 Cargo area and cargo pump rooms	
	3.2 Instrumentation and safety devices	
	3.3 Fire-fighting systems in cargo area	
	3.4 Inert gas system and inert/padding/drying gas	
4	Intermediate survey - Hull items	85
	4.1 General	
	4.2 Weather decks	
	4.3 Cargo and ballast tanks	
5	Intermediate survey - Cargo machinery items	86
	5.1 General	
	5.2 Cargo area and cargo pump rooms	
	5.3 Inert gas system	
6	Renewal survey - Hull items	86
	6.1 Scope of Survey	
	6.2 Overall and close-up surveys	
	6.3 Thickness measurements	
	6.4 Tank testing	
	6.5 Cargo area and cargo pump rooms	
7	Renewal survey - Cargo machinery items	88
	7.1 Cargo area and cargo pump rooms	
	7.2 Fire-fighting systems in cargo area	
	7.3 Inert gas system	

Section 4 Tankers Carrying Liquified Gases

1	General	90
	1.1 Application	
	1.2 Definition	
2	Ordinary survey - Hull items	90
	2.1 General	
	2.2 Weather decks and cargo handling rooms	
	2.3 Other arrangements or devices	
	2.4 Ballast tanks	
3	Ordinary survey - Cargo machinery items	91
	3.1 Cargo area, cargo compressor rooms and cargo pump rooms	
	3.2 Instrumentation and safety devices	
	3.3 Fire-fighting systems in cargo area	
	3.4 Inert gas/air drying systems	
4	Intermediate survey - Hull items	91
	4.1 General	
	4.2 Weather decks and cargo handling rooms	
	4.3 Cargo tanks and water ballast tanks	

5	Intermediate survey - Cargo machinery items	92
	5.1 General	
	5.2 Cargo area, cargo pump rooms and cargo compressor rooms	
	5.3 Instrumentation and safety devices	
	5.4 Inert gas system	
6	Renewal survey - Hull items	93
	6.1 Scope of Survey	
	6.2 Overall surveys	
	6.3 Thickness measurements	
	6.4 Tank testing	
	6.5 Cargo tank structure	
	6.6 Weather decks and cargo handling rooms	
7	Renewal survey - Cargo machinery items	95
	7.1 Cargo area, cargo pump rooms, cargo compressor rooms	
	7.2 Fire-fighting systems in cargo area	
	7.3 Inert gas system	

Section 5 Ro-ro Cargo Ships, Passenger Ships, Ro-ro Passenger Ships

1	General	96
	1.1	
2	Ro-ro cargo ships - Ordinary survey	96
	2.1 Shell and inner doors	
	2.2 Internal platforms and ramps	
	2.3 Fire protection, detection and extinction	
3	Ro-ro cargo ships - Class renewal survey	97
	3.1 Shell and inner doors	
	3.2 Internal platforms and ramps	
	3.3 Fire protection, detection and extinction	
4	Passenger ships - Ordinary survey	97
	4.1 Watertight bulkheads	
	4.2 Openings in shell plating	
	4.3 Lightweight survey	
	4.4 Miscellaneous	
5	Passenger ships - Class renewal survey	98
	5.1	
6	Ro-ro passenger ships - Ordinary and class renewal surveys	98
	6.1	

Section 6 Other Service Notations

1	General	99
	1.1	
2	Dredging units	99
	2.1 Ordinary survey	
	2.2 Class renewal survey	

-
- 3.1 Ordinary survey
 - 3.2 Class renewal survey

CHAPTER 5

ADDITIONAL CLASS NOTATIONS

Section 1 General

1	General	103
<hr/>		
	1.1	
2	Additional class notations subject to additional surveys	103
<hr/>		
	2.1	

Section 2 Monitoring Equipment

1	General	104
<hr/>		
	1.1 Application	

Part A
Classification and Surveys

Chapter 1

**PRINCIPLES OF CLASSIFICATION AND CLASS
NOTATIONS**

SECTION 1 GENERAL PRINCIPLES OF CLASSIFICATION

SECTION 2 CLASSIFICATION NOTATIONS

SECTION 1

GENERAL PRINCIPLES OF CLASSIFICATION

1 Principles of classification

1.1 Purpose of the Rules

1.1.1 These Rules give the requirements for the assignment and the maintenance of class for inland waterway ships.

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

1.1.2 The requirements of these rules regarding fire protection, detection and extinction (hereinafter referred to as "fire protection requirements") are no longer mandatory for the purpose of classification, except where Tasneef carries out surveys relevant to fire protection statutory requirements on behalf of the flag Administration.

In such cases, fire protection requirements are considered a matter of class and therefore compliance with these requirements is also verified by Tasneef for classification purposes at class surveys.

1.1.3 (1/7/2020)

The rules are subdivided in the following parts:

- Part A - Classification and Surveys
- Part B - Hull and Stability
- Part C - Machinery, Systems and Fire Protection
- Part D - Materials and Welding
- Part E - Service Notations
- Part F - Additional Class Notations applicable, at the request of the Interested Parties
- Part G - Additional Requirements conformity to Directive 2016/1629/EU as amended.

Parts A to F apply for the purpose of classification.

Part G is applicable, at the request of the Interested Party, to all ships subject to Directive 2016/1629/EU as amended.

To ships which satisfy the requirements of the Part G, a statement attesting the compliance with the Directive 2016/1629/EU as amended may be granted by Tasneef if authorized.

Unless Tasneef is authorized by the Administration, said statement can not be used in lieu of the "Inland waterways vessel certificate" foreseen by the Directive.

1.1.4 As an alternative to these rules, Tasneef, upon agreement with the Interested Party and/or Administrations, may agree to apply statutory regulations for inland waterway ships, such as ADN.

1.2 General definitions

1.2.1 (1/1/2022)

The following general definitions are used in these Rules:

- "Administration" means the Government of the State whose flag the ship is entitled to fly or the State under whose authority the ship is operating in the specific case
- "Approval" means the examination and acceptance by Tasneef of documents, procedures or other items related to classification, verifying solely their compliance with the relevant Rule requirements, or other references where requested
- "Essential service" is intended to mean a service necessary for a ship to sail in inland waterway, be steered or manoeuvred, or undertake activities connected with its operation, and for the safety of life, as far as class is concerned
- "Inland waterway ship" is a ship designed and operated for Inland Navigation.
- "Interested Party" means a party, other than Tasneef, having responsibility for the classification of the ship, such as the Owner of the ship and his representatives, or the Shipbuilder, or the Engine Builder, or the Supplier of parts to be tested
- "Owner" means the Registered Owner or the Disponent Owner or the Manager or any other party having the responsibility to keep the ship in worthy condition for navigation in inland water, having particular regard to the provisions relating to the maintenance of class laid down in Chapter 2
- "Survey" means an intervention by the Surveyor for assignment or maintenance of class as defined in Chapter 2, or interventions by the Surveyor within the limits of the tasks delegated by the Administrations
- "Surveyor" means technical staff acting on behalf of Tasneef to perform tasks in relation to classification and survey duties
- "Type approval" means an approval process for verifying compliance with the Rules of a product, a group of products or a system, and considered by Tasneef as representative of continuous production

1.3 Meaning of classification, scope and limits

1.3.1 The classification consists of:

- the development of Rules, guidance notes and other documents relevant to the ship, structure, material,

equipment, machinery and any other item covered by such documents

- the examination of plans and calculations and the surveys, checks and tests intended to ensure that the ship meets the Rules (refer to Ch 2, Sec 1)
- the assignment of class (see Ch 2, Sec 1) and issue of a Certificate of Classification, where the above Rules are met
- the periodical, occasional and class renewal surveys performed to verify that the ship in service meets the conditions for maintenance of class (see Ch 2, Sec 2).

1.3.2 The Rules, surveys performed, reports, certificates and other documents issued by Tasneef are in no way intended to replace or alleviate the duties and responsibilities of other parties such as Administrations, Designers, Shipbuilders, Manufacturers, Repairers, Suppliers, Contractors or Subcontractors, actual or prospective Owners or Operators, Charterers, Brokers, Cargo owners and Under-writers.

Tasneef cannot therefore assume the obligations arising from these functions, even when Tasneef is consulted to answer inquiries concerning matters not covered by its Rules or other documents.

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 ship, 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 ship or additional class notation assigned.

The classification-related services and documents performed and issued by Tasneef 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 Tasneef with regard to such responsibilities, obligations and liabilities.

In particular, Tasneef does not declare the acceptance or commissioning of a ship or any part of it, this being the exclusive responsibility of the Owner.

1.3.3 Unless otherwise specified, the Rules do not deal with structures, pressure vessels, machinery and equipment which are not permanently installed and used solely for operational activities such as dredging or heavy load lifting, workshops or welding equipment, except for their effect on classification-related matters, as declared by the Interested Party, such as fire protection and ship's general strength.

During periods of construction, modification or repair, the unit is solely under the responsibility of the builder or the repair yard. As an example, the builder or repair yard is to ensure that the construction, modification or repair activi-

ties are compatible with the design strength of the ship and that no permanent deformations are sustained.

Note 1: Refer to [3.3] as regards the Owner's responsibility for maintenance and operation of the ship in relation to the maintenance of class.

1.4 Request for services

1.4.1 Requests for interventions by Tasneef, such as surveys during construction, surveys of ships in service, tests etc, are in principle to be submitted in writing and signed by the Interested Party. Such request implies that the applicant will abide by all the relevant requirements of the Rules, including its Preamble.

Tasneef reserves the right to refuse or withdraw the class of any ship for which any applicable requirement of the Rules is not complied with.

1.5 Register of Ships

1.5.1 A Register of Ships is published periodically by Tasneef. This publication, which is updated by Tasneef, contains the names of ships which have received the Certificate of Classification, as well as particulars of the class assigned and information concerning each ship.

2 Rules

2.1 Equivalence

2.1.1 Tasneef may consider the acceptance of alternatives to these Rules, provided that they are deemed to be equivalent to the Rules to the satisfaction of Tasneef.

2.2 Effective date

2.2.1 The effective date of entry into force of any amendments to the Rules is indicated on the inside front page of each Part of the Rules.

2.2.2 In principle, the applicable Rules for assignment of class to a new ship are those in force at the date when the contract for construction between the Owner and the shipbuilder is signed (see Note 1).

Note 1: Unless specified otherwise:

- The date of "contract for construction" of a ship is the date on which the contract to build the ship is signed between the prospective Owner and the shipbuilder. This date is normally to be declared to Tasneef by the party applying for the assignment of class to a new building.
- The date of "contract for construction" of a series of sister ships, including specified optional ships for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective Owner and the shipbuilder.

For the purpose of this issue, sister ships are ships built to the same approved plans for classification purposes. The optional ships will be considered part of the same series of sister ships, if the option is exercised not later than one year after the contract to build the series was signed. Sister ships may have minor

design alterations provided such alterations do not affect matters related to classification.

- If a contract for construction is later amended to include additional ships or additional options, the date of "contract for construction" for such ships is the date on which the amendment to the contract is signed between the prospective Owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which a) and b) above apply.

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

- when a justified written request is received from the party applying for classification
- when the keel is not yet laid and more than one year has elapsed since the contract was signed
- where it is intended to use existing previously approved plans for a new contract.

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

2.2.5 The Rule requirements related to assignment, maintenance and withdrawal of the class of ships already in operation are applicable from the date of their entry into force.

2.2.6 (1/7/2015)

2.2.7

At Tasneef discretion, due to specific Flag Administration regulations, different intervals, extent and scope of surveys may be applied according to the requirements specified in Ch 2, App 2.

2.3 Novel features

2.3.1 Tasneef may consider the classification of ships based on or applying novel design principles or features, to which the Rules are not directly applicable, on the basis of experiments, calculations or other supporting information provided to Tasneef. The specific limitations may then be indicated on the Certificate of Classification.

2.4 Interpretation

2.4.1 Tasneef 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 Tasneef.

2.5 Disagreement and appeal

2.5.1 Any technical disagreement with the Surveyor in connection with the performance of his duties should be raised by the Interested Party as soon as possible.

The Interested Party may appeal in writing to Tasneef, which will subsequently consider the matter and announce its decision according to its established procedure.

3 Duties of the Interested Parties

3.1 International and national regulations

3.1.1 (1/1/2022)

The classification of a ship does not absolve the Interested Party from compliance with any requirements issued by Administrations and any other applicable international and national regulations for the safety of navigation in inland waters.

3.1.2 When authorised by the Administration concerned, Tasneef will act on its behalf within the limits of such authorisation. In this respect, Tasneef will take into account the relevant national requirements, survey the ship, 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 ships, even though their scope may overlap in part and may be carried out concurrently with surveys for assignment or maintenance of class.

3.1.3 In the case of a discrepancy between the provisions of the applicable international and national regulations and those of the Rules, normally, the former take precedence.

However, Tasneef reserves the right to call for the necessary adaptation to preserve the intention of the Rules or to apply the provisions of [1.4.1].

3.2 Surveyor's intervention

3.2.1 Surveyors are to be given free access at all times to ships which are classed or being classed, shipyards and 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 auditors accompanying the Surveyors of Tasneef within the scope of the vertical audits as required in pursuance of Tasneef internal Quality System or as required by external organisations.

3.2.2 Interested Parties are to take the necessary measures for the Surveyors' inspections and testing to be carried out safely. Interested Parties - irrespective of the nature of the service provided by the Surveyors of Tasneef or others acting on its behalf - assume with respect to such Surveyors all the responsibility of an employer for his workforce such as to meet the provisions of applicable legislation. As a rule, the

Surveyor is to be constantly accompanied during surveys by personnel of the Interested Party.

Refer also to Ch 2, Sec 2, [2.5] to Ch 2, Sec 2, [2.8].

3.2.3 The Certificate of Classification and/or other documents issued by Tasneef remain the property of Tasneef.

All certificates and documents necessary to the Surveyor's interventions are to be made available by the Interested Party to the Surveyor on request.

3.2.4 During the phases of ship design and construction, due consideration should be given to Rule requirements in respect of all necessary arrangements for access to spaces and structures with a view to carrying out class surveys.

Arrangements of a special nature are to be brought to the attention of Tasneef.

3.3 Operation and maintenance of ships

3.3.1 (1/1/2022)

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

In particular, it will be assumed that the draught of the ship in operating conditions will not exceed that corresponding to the freeboard assigned or the maximum approved for the classification, that the ship will be properly loaded taking into account both its stability and the stresses imposed on its structures and that cargoes will be properly stowed and suitably secured, that the speed and course of the ship are adapted to the prevailing water and weather conditions according to the normal prudent navigation skill and that the ship is operated in accordance with the applicable international and national regulations for the prevention and containment of inland waterway pollution.

3.3.2 Any document issued by Tasneef in relation to its interventions reflects the condition of the ship as found at the time and within the scope of the survey. It is the Interested Party's responsibility to ensure proper maintenance of the ship until the next survey required by the Rules. It is the duty of the Interested Party to inform the Surveyor when he boards the ship of any events or circumstances affecting the class.

3.4 Use of measuring equipment and of service suppliers

3.4.1 General

Firms providing services on behalf of the Interested Party, 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 Tasneef, as deemed necessary.

The equipment used during tests and inspections in workshops, shipyards and on board ships, the results of which may form the basis for the Surveyor's decisions, is to be customary for the checks to be performed. Firms are to individually identify and calibrate to a recognised national or international standard each piece of such equipment.

3.4.2 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.

3.4.3 Shipboard measuring equipment

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

3.4.4 Other equipment

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

3.5 Spare parts

3.5.1 It is the Owner's responsibility to decide whether and which spare parts are to be carried on board.

3.5.2 As spare parts are outside the scope of classification, the Surveyor will not check that they are kept on board, maintained in a satisfactory condition, or suitably protected and lashed.

However, in the case of repairs or replacement, the spare parts used are to meet the requirements of the Rules as far as practicable; refer to Ch 2, Sec 2, [6.4.2].

3.6 Use of asbestos

3.6.1 (1/7/2015)

New installation of materials which contain asbestos is prohibited.

SECTION 2

CLASSIFICATION NOTATIONS

1 General

1.1 Purpose of the classification notations

1.1.1 The classification notations give the scope according to which the class of the ship has been based and refer to the specific Rule requirements which are to be complied with for their assignment. In particular, the classification notations are assigned according to the type, service and navigation of the ship and other criteria which have been provided by the Interested Party, when applying for classification.

Tasneef may change the classification notations at any time, when the information available shows that the requested or already assigned notations are not suitable for the intended service, navigation and any other criteria taken into account for classification.

Note 1: Reference should be made to Sec 1, [1.3] on the limits of classification and its meaning.

1.1.2 The classification notations assigned to a ship are indicated on the Certificate of Classification, as well as in the Register of Ships published by Tasneef.

1.1.3 The classification notations applicable to existing ships conform to the Rules of Tasneef in force at the date of assignment of class, as indicated in Ch 2, Sec 1. However, the classification notations of existing ships may be updated according to the current Rules, as far as applicable.

1.2 Types of notations assigned

1.2.1 The types of classification notations assigned to a ship are the following:

- a) main class symbol
- b) construction marks
- c) service notations with additional service features, as applicable
- d) navigation notations
- e) operating area notations (optional)
- f) additional class notations (optional).

The different classification notations and their conditions of assignment are listed in [2] to [6] below, according to their types

1.2.2 As an example, the classification notations assigned to a ship may be as follows (the kind of notation shown in brackets does not form part of the classification notation indicated in the Register of Ships and on the Certificate of Classification):

C ✕ **HULL** ✕ **MACH**

(main class symbol, construction marks)

Passenger Ship

(service notation and additional service features)

Inland waterways (2)

(navigation notation)

EFP

(additional class notation).

2 Main class symbol

2.1 General

2.1.1 The main class symbol expresses the degree of compliance of the ship with the Rule requirements as regards its construction and maintenance. There is one main class symbol, which is compulsory for every classed ship.

2.1.2

The main class symbol **C** is assigned to ships built in accordance with the requirements of the Rules or other rules recognised as equivalent, and maintained in a condition considered satisfactory by Tasneef. The maximum period of class (or interval between class renewal surveys) assigned to a ship is 5 years for ships carrying passengers and 10 years for ships other than passenger ships; see Ch 2, Sec 2,[4].

Except for special cases, class is assigned to a ship only when the hull, propulsion and auxiliary machinery installations, and equipment providing essential services have all been reviewed in relation to the requirements of the Rules.

Note 1: The symbol **C** with the 5 or 10-years class period is to be understood as being the highest class granted by the Society.

3 Construction marks

3.1 General

3.1.1 The construction mark identifies the procedure under which the ship and its main equipment or arrangements have been surveyed for initial assignment of the class. The procedures under which the ship is assigned one of the construction marks are detailed in Ch 2, Sec 1.

3.1.2 One of the construction marks defined below is assigned separately to the hull of the ship and its appendages, to the machinery installation, and to some installations for which an additional classification notation (see [6] below) is assigned.

The construction mark is placed before the symbol **HULL** for the hull, before the symbol **MACH** for the machinery installations, and before the additional class notation granted, when such a notation is eligible for a construction mark.

When the same construction mark is assigned to both hull and machinery, the construction mark is assigned globally to the ship without the indication **HULL** and **MACH** after the main class symbol.

If the ship has no machinery installations covered by classification, the symbol **MACH** is not granted and the construction mark will be placed before the symbol **HULL**.

3.1.3 The construction marks refer to the original condition of the ship. However, Tasneef may change the construction mark where the ship is subjected to repairs, conversion or alterations.

3.2 List of construction marks

3.2.1 The mark ☒ (**Maltese Cross**) is assigned to the relevant part of the ship, when it has been surveyed by the Society during its construction in compliance with the new building procedure detailed in Ch 2, Sec 1, [2.1].

3.2.2 The mark ☒ (**Maltese Cross Underlined**) is assigned to the relevant part of the ship, when the latter is classed after construction in compliance with the procedure detailed in Ch 2, Sec 1, [3.2], it was built under the survey of a recognised Classification Society and was assigned by this Society a class deemed equivalent to that described in the Rules. This mark is also assigned to ships admitted to class in the course of construction surveyed by another recognised Classification Society.

3.2.3 The mark ● is assigned to the relevant part of the ship, where the procedure for the assignment of classification is other than those detailed in [3.2.1] and [3.2.2], but still deemed acceptable.

4 Service notations

4.1 General

4.1.1 The service notations define the type and/or service of the ship which has been considered for its classification, according to the request for classification signed by the Interested Party. At least one service notation is to be assigned to every classed ship.

Note 1: The service notations applicable to existing ships conform to the Rules of the Society in force at the date of assignment of class. However, the service notations of existing ships may be updated according to the current Rules, as far as applicable, at the request of the Interested Party

4.1.2 The assignment of any service notation to a new ship is subject to compliance with general Rule requirements laid down in Part B, Part C and Part D of the Rules and, for some service notations, the additional requirements laid down in Part E.

4.1.3 A ship may be assigned several different service notations. In such case, the specific Rule requirements applicable to each service notation are to be complied with. However, if there is any conflict in the application of the requirements applicable to different service notations, Tasneef reserves the right to apply the most appropriate

requirements or to refuse the assignment of one of the requested service notations.

4.1.4 A service notation may be completed by one or more additional service features, giving further precision regarding the type of service of the ship, for which specific Rule requirements are applied.

4.1.5 The different service notations which may be assigned to a ship are listed in [4.2] to [4.11], according to the category to which they belong. These service notations are also listed in alphabetical order in Tab 1, where the correspondence between the service notation assigned by Tasneef and the type of ship defined by the International Conventions is also given for information.

As a rule, all notations in [4.2], [4.3], [4.5] and [4.6] are only to be assigned to self-propelled units.

4.1.6 The class notation **ADN** or **ADNR** may be assigned as a service notation when the ship has been found in compliance with the relevant regulations.

4.2 Cargo ships

4.2.1 The service notations related to self-propelled ships intended for the carriage of cargo are listed in [4.2.2] to [4.2.6] below.

4.2.2 general cargo ship, for ships intended to carry general cargo.

The service notations may be completed by the following additional service features, as applicable:

- **equipped for carriage of containers**, where the ship's fixed arrangements comply with the applicable requirements in Pt E, Ch 1, Sec 17.
- **heavycargo [AREA1, X1 kN/m² - AREA2, X2 kN/m² - ...]**, when the double bottom and/or hatch covers and/or other cargo areas designed to support heavy cargoes fulfil the appropriate Rule requirements. The values Xi indicate the maximum allowable local pressures on the various zones AREAi where the cargo is intended to be stowed. The requirements for the assignment of this additional service notation are given in Pt E, Ch 1, Sec 17.
- **nonhomload**, the type and service notation **cargo ship** will be completed by the additional class notation **non-homload** when the ship has been designed in such a way that the cargo spaces may be loaded non-homogeneously, including cases where some holds may be empty, at a draught up to the scantling draught and fulfil the appropriate Rule requirements for general strength, and when the corresponding loading conditions are listed in the reviewed loading manual. This notation can be completed with the indication of the different maximum loads allowed in each hold and which holds may be empty, if appropriate.
- **equipped for the transport of wheeled vehicles** where the ship comply with the applicable requirements in Pt E, Ch 1, Sec 8.
- **equipped for the transport of containers** where the ship comply with the applicable requirements in Pt E, Ch 1, Sec 19.

4.2.3 ro-ro cargo ship, for ships specially intended to carry vehicles, trains or loads on wheeled beds. The additional requirements of Pt E, Ch 1, Sec 2 are applicable to these ships.

4.2.4 container ship, for ships specially intended to carry containers in holds or on decks. The additional requirements of Pt E, Ch 1, Sec 10 are applicable to these ships.

4.2.5 bulk cargo, for ships specially intended to carry dry cargo in bulk. The additional requirements of Pt E, Ch 1, Sec 16 are applicable to these ships.

4.2.6 The service feature **DG** is added to the service notation **general cargo ship** when carrying dry dangerous goods and when complying with Pt E, Ch 2, Sec 4.

4.3 Ships carrying liquid or gaseous cargo in bulk

4.3.1 The service notation **tanker** is related to ships intended for the carriage in bulk in integral tanks, or in permanently installed independent tanks, of liquid products having any flashpoint. Such tankers are suitable for the carriage of oil or oil products.

The service notation **tanker (chem)** is intended for tankers carrying in bulk dangerous or noxious liquid chemicals, which are not oil products or similar flammable products. Products which may be carried are those listed in Pt E, Ch 2, App 1.

The service notation **tanker (gas)** is related to ships intended for carrying liquefied gases. Liquefied gases which may be carried are those listed in Pt E, Ch 2, App 1, except for different provisions issued by the Administration of the State with jurisdiction for the service zone of the ship.

Table 1 : List of service notations and feature notations

Service notation	Reference for definition	Reference chapter in Part E
barge	[4.7.1]	Part E, Chapter 1, Sec 7
bulk cargo	[4.2.5]	Part E, Chapter 1, Sec 16
container ship	[4.2.4]	Part E, Chapter 1, Sec 10
dredger	[4.5.2]	Part E, Chapter 1, Sec 8
general cargo ship	[4.2.2]	Part E, Chapter 1, Sec 14 and 15
hopper dredger	[4.5]	Part E, Chapter 1, Sec 8
hopper unit	[4.5]	Part E, Chapter 1, Sec 8
high speed vessels	[4.9]	Part E, Chapter 1, Sec 20
launch	[4.6.4]	Part E, Chapter 1, Sec 9
passenger ship	[4.4]	Part E, Chapter 1, Sec 1
passenger sailing ship	[4.4]	Part E, Chapter 1, Sec 1
pontoon	[4.7.2]	Part E, Chapter 1, Sec 7
puscher	[4.6.2]	Part E, Chapter 1, Sec 3
ro-ro cargo ship	[4.4.2]	Part E, Chapter 1, Sec 2
ro-ro passenger ship	[4.4.2]	Part E, Chapter 1, Sec 2
special service	[4.8]	(1)
split hopper dredger	[4.5]	Part E, Chapter 1, Sec 8
split hopper unit	[4.5]	Part E, Chapter 1, Sec 8
tanker	[4.3]	Part E, Chapter 1, Sec 11
tanker (chem)	[4.3]	Part E, Chapter 1, 12 and Chapter 2 as applicable
tanker (gas)	[4.3]	Part E, Chapter 1, 13 and Chapter 2 as applicable
tug	[4.6.2]	Part E, Chapter 1, Sec 3
(1) These ships are considered on a case by case basis by Tasneef according to their type of service.		

4.3.2 Additional service features

The service notation **tanker**, **tanker(chem)**, **tanker(gas)** are to be defined on the base of the following service features notations:

- a) Test pressure TP;
- b) Design pressure DP;
- c) Type of tankers (Type G, Type C and Type N)

With reference to the type of tanker, the following specifications are to be considered for tankers carrying dangerous goods:

- Type C tankers are to be in compliance with the additional requirements given in Pt E, Ch 3, Sec 1 or with the ADN or ADNR regulations as applicable for such ships
- Type G tankers are to be in compliance with the additional requirements given in Pt E, Ch 2, Sec 2 or with the ADN or ADNR regulations as applicable for such ships
- Type N tankers are to be in compliance with the additional requirements given in Pt E, Ch 2, Sec 1 or with the ADN or ADNR regulations as applicable for such ships. In particular, for type N tankers the additional requirements given in the above Rules as applicable for Type N closed, Type N with flare arresters and Type N open are to be considered
- Flash point > 60°C, where the ship is intended to carry only such products, under certain conditions.

As an example, the possible class notation applicable to a double hull tanker Type G may be the following:

C ✕ HULL, ✕ MACH, TANKER, DOUBLE HULL, DP 45 Kpa / TP 62 KPa, TYPE C, inland waterways (2)

The additional requirements of Part E, Chapter 10 are applicable to these ships.

4.4 Ships carrying passengers

4.4.1 The service notations related to ships specially intended for the carriage of passengers are listed in [4.4.2] and [4.4.3] below.

4.4.2 passenger ship, for ships intended to carry more than 12 passengers. The additional requirements of Pt E, Ch 1, Sec 1 are applicable to these ships.

4.4.3 ro-ro passenger ship, for ships intended to carry more than 12 passengers and specially equipped to load trains or wheeled vehicles. The additional requirements of Pt E, Ch1, Sec 2 are applicable to these ships.

4.5 Ships for dredging activities

4.5.1 The service notations related to ships specially intended for dredging activities are listed in [4.5.2]. The additional requirements of Pt E, Ch 1, Sec 9 are applicable to these ships.

4.5.2 The following notations are provided:

- a) **dredger**, for ships specially equipped only for dredging activities (excluding carrying dredged material)
- b) **hopper dredger**, for ships specially equipped for dredging activities and carrying spoils or dredged material
- c) **hopper unit**, for ships specially equipped for carrying spoils or dredged material
- d) **split hopper unit**, for ships specially equipped for carrying spoils or dredged material and which open longitudinally, around hinges
- e) **split hopper dredger**, for ships specially equipped for dredging and for carrying spoils or dredged material and which open longitudinally, around hinges.

4.5.3 (1/1/2022)

These ships which are likely to operate in inland water within specific limits may, under certain conditions, be granted an operating area notation. For the definition of operating area notation, reference should be made to [5.3].

4.6 Working ships

4.6.1 The service notations related to ships specially intended for different working services are listed in [4.6.2] and [4.6.3].

4.6.2 The service notations for ships intended to tow and/or push other ships or units are:

- a) **tug**, for ships specially equipped for towing
- b) **pusher**, for ships specially equipped only for pushing.
- c) **tug-pusher**, for ships specially equipped for towing and pushing.

The additional requirements of Pt E, Ch 1, Sec 3 are applicable to these ships.

These service notations may be completed by the additional service feature:

- **barge combined**, when units are designed to be connected with barges and comply with the relevant requirements of Pt E, Ch 1, Sec 6 and Sec 7. The barges to which the **tug** or **pusher** can be connected are specified in an annex to the Certificate of Classification.

4.6.3 The service notation **launch** is assigned to small ships specially intended for the carriage and/or storage of special material and equipment and/or which are used to provide facilities and assistance for the performance of specified activities, such as offshore and underwater activities.

4.7 Non-propelled and assisted propulsion units

4.7.1 Barge

The service notation **barge** is assigned to non-propelled units intended to carry (dry or liquid) cargo inside holds or tanks.

The additional requirements of Pt E, Ch 1, Sec 7 are applicable to these ships.

Other additional requirements applicable to such units are to be in relation to the type of goods to be carried and this notation is to be completed on the base of the applicable requirements. The tugs to which the barge can be connected are specified in an annex to the Certificate of Classification.

4.7.2 Pontoon

The service notation **pontoon** is assigned to non-propelled units intended to carry cargo and/or equipment on deck only.

4.7.3 Other units

Any non-propelled units other than those covered by the service notations listed above will be assigned the additional service feature **no propulsion**, to be added to their own service notation, e.g. **dredger - no propulsion**.

4.7.4 Assisted propulsion units

Any units having a propulsion system not enabling them to proceed at a speed greater than 7 knots, used for short transit voyages, will be assigned the additional service feature **assisted propulsion**, to be added to their own service notation, e.g. **dredger - assisted propulsion**.

4.8 Miscellaneous units

4.8.1 The service notation **special service** is assigned to ships which, due to the peculiar characteristics of their activity, are not covered by any of the notations mentioned above. The classification requirements of such units are considered by Tasneef on a case-by-case basis.

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

An additional service feature may be specified after the notation (e.g. **special service - training, special service - ship lift, special service - fish factory**) to identify the particular service in which the ship is intended to trade. The scope and criteria of classification of such units are indicated in an annex to the Certificate of Classification.

4.9 High speed vessels

4.9.1 This service notation is relevant to ships with mechanical propulsion capable of reach speed over 40 km/h in relation to water in compliance to the requirements given in Pt E, Ch 1, Sec 20.

5 Navigation and operating area notations

5.1 Navigation notations

5.1.1 Every classed ship is to be assigned one navigation notation as listed in [5.2].

5.1.2 The assignment of a navigation notation, including the reduction of scantlings or specific arrangements for restricted navigation notations, is subject to compliance

with the requirements laid down in Part B, Part C, Part D and Part E.

5.1.3 The assignment of a navigation notation does not absolve the Interested Party from compliance with any international and national regulations established by the Administrations for a ship operating in national waters, or a specific area, or a navigation zone. Neither does it waive the requirements in Sec 1, [3.3.1].

5.2 List of navigation notations

5.2.1 For inland navigation ships, the following navigation notations may be assigned:

- **inland waterways (0)**: is assigned to ships intended to navigate on still and smooth stretches of water. Specific requirements are given in Pt B, Ch 6;
- **inland waterways (0,6)**: is assigned to ships intended to navigate on stretches of water where there may be strong currents and a certain roughness of the surface on which a maximum significant wave height of 0,6 m may occur. Specific requirements are given in Pt B, Ch 6;
- **inland waterways (1,2)**: is assigned to ships intended to navigate on semi-maritime stretches of water or lakes on which a maximum significant wave height of 1,2 m may occur. Specific requirements are given in Pt B, Ch 6;
- **inland waterways(2)**: is assigned to ships intended to navigate on semi-maritime stretches of water or lakes on which a maximum significant wave height of 2 m may occur. Specific requirements are given in Pt B, Ch 6.

Where:

maximum significant wave height means the average height of 10% of the total number of waves having the greatest heights measured between wave trough and wave crest, observed over a short period.

5.3 Operating area notations

5.3.1 (1/1/2022)

The operating area notation expresses the specified area where some service units are likely to operate in inland water within specific restrictions which are different from normal navigation conditions.

The operating area notation is, in principle, solely granted to working units, such as dredgers and crane pontoons.

6 Additional class notations

6.1 General

6.1.1 An additional class notation expresses the classification of additional equipment or a specific arrangement, which has been requested by the Interested Party.

6.1.2 The assignment of such an additional class notation is subject to compliance with additional Rule requirements, which are detailed in Part F of the Rules.

6.1.3 The different additional class notations which may be assigned to a ship are listed in Tab 2.

6.2 Fire protection

6.2.1 General

Ships which in addition to fire protection requirements given in Pt C, Ch 3, Sec 1 and Sec 2 complying with the specific requirements in Part F may be assigned the additional class notation as indicated in [6.2.2] to [6.2.4].

6.2.2 Fire protection requirements for cargo ships

The additional class notation **FP** is assigned to cargo ships complying with the requirements given in Pt F, Ch 1, Sec 1.

6.2.3 Fire protection requirements for Passenger ships carrying less than 150 passengers

The additional class notation **FP (PAX)** is assigned to passenger ships carrying less than 150 passengers complying with the requirements given in Pt F, Ch 2, Sec 1.

6.2.4 Fire protection requirements for Passenger ships carrying 150 passengers and over

The additional class notation **EFP** is assigned to passenger ships carrying 150 passengers and over complying with the requirements given in Pt F, Ch 3, Sec 1.

6.3 Grabloading

6.3.1 The additional class notation **Grabloading** is assigned to cargo ships having the hold tank tops provided with adequate reinforcements for loading/unloading cargoes by means of grabs or buckets. The requirements for assignment of this additional notation are given in Pt B, Ch

1, Sec 8, [8.3]. In any case, in general, ships not having such notation may not be loaded/unloaded with grabs.

6.4 Damage stability

6.4.1 The additional class notation **DMS** is assigned to ships complying with the damage stability requirements given in:

- Pt F, Ch 4, Sec 1 relevant to passenger ships
- Pt F, Ch 4, Sec 2 relevant to ships carrying dangerous goods
- Pt F, Ch 4, Sec 3 relevant to cargo ships with length > 110 m

6.5 Shaft monitoring system (MON-SHAFT)

6.5.1 The additional class notation **MON-SHAFT** is assigned to ships which are fitted with a temperature monitoring system for the tailshaft sterntube bearings. The requirements for the assignment of this notation are given in Pt F, Ch 5, Sec 1.

6.6 In-water survey (INWATERSURVEY)

6.6.1

The additional class notation **INWATERSURVEY** is assigned to ships provided with suitable arrangements to facilitate the in-water surveys as provided in Ch 3, Sec 4, [3].

The requirements for the assignment of this notation are given in Pt F, Ch 5, Sec 2.

Table 2 : List of additional class notations

Additional class notation	Reference for definition	Reference
GRABLOADING	[6.3]	Pt B, Ch 1, Sec 8, [8.3]
FP	[6.2.2]	Pt F, Ch 1, Sec 1
FP(PAX)	[6.2.3]	Pt F, Ch 2, Sec 1
EFP	[6.2.4]	Pt F, Ch 3
DMS	[6.4]	Pt F, Ch 4
SHAFT MONITORING SYSTEM [MON-SHAFT]	[6.5]	Pt F, Ch 5, Sec 1
INWATERSURVEY	[6.6]	Pt F, Ch 5, Sec 2

Part A
Classification and Surveys

Chapter 2

**ASSIGNMENT, MAINTENANCE, SUSPENSION AND
WITHDRAWAL OF CLASS**

SECTION 1 ASSIGNMENT OF CLASS

SECTION 2 MAINTENANCE OF CLASS

SECTION 3 SUSPENSION AND WITHDRAWAL OF CLASS

APPENDIX 1 CRITERIA FOR LONGITUDINAL STRENGTH OF THE HULL GIRDER

**APPENDIX 2 ACCEPTANCE OF SURVEYS WITH DIFFERENT INTERVALS,
EXTENT AND SCOPE**

SECTION 1

ASSIGNMENT OF CLASS

1 General

1.1

1.1.1 Class is assigned to a ship upon a survey, with the associated operations, which is held in order to verify whether it is eligible to be classed on the basis of the Rules (see Ch 1, Sec 1, [1.3.2]). This may be achieved through:

- the completion of the new building, during which a survey has been performed,
- a survey carried out according to the agreement developed by the recognized Societies when ships change class, or
- a specific admission to class survey, in cases where a ship is classed with a non-recognized Society or is not classed at all.

2 New building procedure

2.1 Ships surveyed by Tasneef during construction

2.1.1 When a ship is surveyed by Tasneef during construction, it is to comply with those requirements of the Rules which are in force and applicable depending on the class of the ship, taking into account the provisions of Ch 1, Sec 1, [2.2].

2.1.2 Tasneef:

- approves the plans and documentation submitted as required by the Rules
- proceeds, if required, with the appraisal of the design of materials and equipment used in the construction of the ship and their inspection at works
- carries out surveys or obtains appropriate evidence to satisfy itself that the scantlings and construction meet the Rule requirements in relation to the approved drawings
- attends tests and trials provided for in the Rules
- assigns the construction mark \boxtimes ; refer to Ch 1, Sec 2, [3.2.1].

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

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

- conduct an overall examination of the parts of the ship covered by the Rules
- examine the construction methods and procedures when required by the Rules
- check selected items covered by the Rule requirements
- attend tests and trials where applicable and deemed necessary.

2.1.5 Use of materials, machinery, appliances and items

As a general rule, all materials, machinery, boilers, auxiliary installations, equipment, items etc (generally referred to as "products") which are covered by the class and used or fitted on board ships surveyed by Tasneef during construction are to be new and, where intended for essential services as defined in Ch 1, Sec 1, [1.2.1], tested by Tasneef.

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

The requirements for the selection of materials to be used in the construction of the various parts of a ship, the characteristics of products to be used for such parts and the checks required for their acceptance are to be as stated in Part C and Part D, as applicable, or in other Parts of the Rules or as specified on approved plans. In particular, the testing of products manufactured according to quality assurance procedures approved by Tasneef and the approval of such procedures are governed by the requirements of Pt D, Ch 1, Sec 1, [3].

2.1.6 Defects or deficiencies and their repair

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

All repairs are subject to the preliminary agreement of Tasneef. 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.

It is incumbent upon the Interested Party to notify Tasneef of any defects noted during the construction of the ship and/or of any item not complying with the applicable requirements or in any case unsatisfactory. Proposals regarding remedial actions intended to be adopted to eliminate such defects or unsatisfactory items are to be submitted to Tasneef and, if accepted, carried out to the Surveyor's satisfaction.

2.1.7 Equivalence of Rule testing under certain conditions

Notwithstanding the provisions of [2.1.4], Tasneef may, at its discretion and subject to conditions and checks deemed appropriate, accept certain materials, appliances or machinery which have not been subjected to Rule testing.

2.1.8 Ships under construction: ships built under supervision of recognized Classification Society

Tasneef may, at its discretion and subject to conditions and checks deemed appropriate, accept the plans and documentation approved by another recognized Society, as far as classification is concerned and according to the principle of equivalence of Rules in Ch 1, Sec 1, [2.1].

2.2 Other cases

2.2.1 When the procedure adopted does not comply with that detailed in [2.1] but Tasneef deems that it is acceptable for the assignment of class, the construction mark ● is assigned in accordance with Ch 1, Sec 2, [3.2.3].

2.3 Documentation

2.3.1 Documentation relevant to the class applied for is to be submitted for the approval of Tasneef.

2.3.2 The design data, calculations and plans to be submitted are listed in the relevant chapters of the Rules.

Tasneef may also call for additional information according to the specific nature of the ship to be classed.

2.3.3 The documentation submitted to Tasneef is examined in relation to the class applied for in the request for classification.

Note 1: Should the Interested Party subsequently wish to have the class, in particular the service notation or navigation notation, granted to the ship modified, plans and drawings are generally to be re-examined.

2.3.4 A copy of the submitted plans will be returned duly stamped, with remarks related to the compliance with the rule requirements should the need arise.

2.3.5 As a rule, modifications of the approved plans regarding items covered by classification are to be submitted.

2.3.6 Design data to be submitted to the Society are to incorporate all information necessary for the assessment of the design of the ship for the purpose of assignment of class. It is the responsibility of the Interested Party to ascertain that the design data are correct, complete and compatible with the use of the ship.

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

2.3.8 Design data and calculations are to be adequately referenced. It is the duty of the Interested Party to ascertain that the references used are correct, complete and applicable to the design of the ship.

2.3.9 The submitted plans are to contain all necessary information for checking the compliance with the requirements of the Rules.

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

2.3.11 It is the responsibility of the Interested Party to ascertain that drawings used for the procurement, construction and other works are in accordance with the approved plans.

3 Ships classed after construction

3.1 General

3.1.1 When an Owner applies to Tasneef for a ship already in service to be admitted to class, the application will be processed differently depending on whether the ship is:

- classed with a recognized Classification Society, or
- not classed with a recognized Classification Society.

3.2 Ships classed with a recognized Classification Society

3.2.1 General

In general, ships will be admitted to the Tasneef 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 Interested Party, reference is to be made to [3.2.2] and [3.2.3] below.

3.2.2 Surveys

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, Tasneef may dispense with parts of the examination of drawings and computations and may reduce the scope of the survey.

3.2.3 Documentation

As a rule, the documentation to be supplied is the following:

- a) Main plans:
 - General arrangement
 - Capacity plan
 - Hydrostatic curves
 - Loading manual, where required.
- b) Hull structure plans:
 - Midship section
 - Scantling plan
 - Decks
 - Shell expansion
 - Transverse bulkheads
 - Rudder and rudder stock
 - Hatch covers.

- c) Machinery plans:
- Machinery arrangement
 - Intermediate, thrust and screw shafts
 - Propeller
 - Main engines, propulsion gears and clutch systems (or Manufacturer's make, model and rating information)
 - For steam turbine ships, main boilers, superheaters and economisers (or Manufacturer's make, model and rating information) and steam piping
 - Bilge and ballast piping diagram
 - Wiring diagram
 - Steering gear system piping and arrangements and steering gear Manufacturer's make and model information
 - Torsion vibration calculations, for vessels less than two years old
 - Plans for flexible couplings and/or torque limiting shafting devices in the propulsion line shafting (or Manufacturer's make, model and rating information).
 - Pumping arrangements at the forward and after ends, drainage of cofferdams and pump rooms and general arrangements of cargo piping in tanks and on decks, for oil tankers.

Alternative technical data may be accepted by Tasneef in lieu of specific items of the listed documentation not available at the time of the transfer of class.

3.3 Ships not classed with a recognized Classification Society

3.3.1 General

In general, will be provided a preliminary review of the documentation listed in [3.3.3] and subsequent satisfactory completion of the surveys, the extent and scope of which are given below.

3.3.2 Surveys

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 ship of the same age and type; in addition, all other periodical surveys are to be performed together with those inspections which are linked to specific service notations and/or additional class notations and/or special installations the ship is provided with.

3.3.3 Documentation

As a general rule, the documentation to be supplied to Tasneef is not to be less than the following:

- a) Main plans:
- General arrangement
 - Capacity plan
 - Loading cases, calculations of still water bending moments, and relevant documents, particulars of loading calculator and instruction booklet as per the Tasneef requirements, according to the case
 - Stability documents, if applicable (refer to Part B, Chapter 3).

- b) Hull structure plans:

- Midship section
- Profile and deck plan
- Watertight bulkheads
- Rudder and rudder stock
- Shell expansion
- Hatch covers.

- c) Machinery plans:

- Engine room general arrangement
- Diagram of fuel- (transfer, service), bilge-, ballast-, lubricating oil-, cooling-, steam- and feed-, general service and starting compressed air piping
- Diagram of fire-fighting systems
- Drawings of boilers and air receivers
- Drawings of shaft line, reduction gear and propeller
- Drawings of steering gear.

- d) Electrical installation plans:

- Master plan of power distribution, lighting and emergency power circuits
- Single line diagram of networks and switchboards
- Location and arrangement of electrical equipment in hazardous areas.

Alternative technical data may be accepted by Tasneef in lieu of specific items of the listed documentation not available at the time of the transfer of class.

3.3.4 Equivalence

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 ships of recent construction.

For installations or equipment covered by additional service and/or class notations, Tasneef will determine the documentation to be submitted.

In addition, Tasneef may base its judgement 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 recognised organisation on its behalf; moreover, other documents and/or plans may be specifically required to be supplied to Tasneef in individual cases.

4 Date of initial classification

4.1 Definitions

4.1.1 Date of build

For a new building the date of build is the year and month at which the new construction survey process is completed. Where there is a substantial delay between the completion of the construction survey process and the ship commencing active service, the date of commissioning may also be specified.

If modifications are carried out, the date of build remains assigned to the ship. Where a complete replacement or addition of a major portion of the ship (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 ship is indicated on the Certificate of Classification
- survey requirements are based on the date of build associated with each major portion of the ship.

4.1.2 Date of initial classification for new buildings

As a general rule, for new buildings the date of initial classification coincides with the date of build.

4.1.3 Date of initial classification for existing ships

In principle, for existing ships the date of initial classification is the date of completion of the admission to class survey.

4.1.4 Period of class

The assigned period of class is never to exceed 5 years for passenger ships or 10 years for other ships different from

passenger ships. The above period is granted only upon completion of the new building procedure and, for ships classed after construction, upon the satisfactory outcome of a survey with the scope of a renewal survey.

If a ship classed after construction was previously classed with a recognised Classification Society [3.2], the assigned period of class is never to go beyond the due date of the renewal survey assigned by the previous Classification Society.

5 Reassignment of class

5.1

5.1.1 At the request of the Owner, a ship which was previously classed with Tasneef, subsequently withdrawn from class and has not been classed since 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 Tasneef.

SECTION 2 MAINTENANCE OF CLASS

1 General principles of surveys

1.1 Survey types

1.1.1

Classed ships are submitted to surveys for the maintenance of class. These surveys include the class renewal survey, intermediate and ordinary survey, bottom survey (either survey in dry condition or in-water survey), tail shaft survey, boiler survey, and surveys for the maintenance of additional class notations, where applicable. Such surveys are carried out at the intervals and under the conditions laid down in this Section. In addition to the above periodical surveys, ships are to be submitted to occasional surveys whenever the circumstances so require; refer to [6].

1.1.2 The different types of periodical surveys are summarised in Tab 1. The intervals at which the periodical surveys are carried out are given in the items referred to in the second column of Tab 1. The relevant extent and scope are given in Chapter 3 and Chapter 4 for all ships and for service notations, respectively, while surveys related to additional class notations are given in Chapter 5.

Where there are no specific survey requirements for additional class notations assigned to a ship, equipment and/or arrangements related to these additional class notations are to be examined, as applicable, to the Surveyor's satisfaction at each class renewal survey for the main class.

The surveys are to be carried out in accordance with the relevant requirements in order to confirm that the hull, machinery, equipment and appliances comply with the applicable Rules and will remain in satisfactory condition based on the understanding and assumptions mentioned in Ch 1, Sec 1, [3.3].

Where the conditions for the maintenance of main class, service notations and additional class notations are not complied with, the main class and/or the service notation and/or the additional class notations as appropriate will be

suspended and/or withdrawn in accordance with the applicable Rules given in Sec 3.

Note 1: It is understood that requirements for surveys apply to those items that are obligatory according to the Rules or, even if not obligatory, are fitted on board.

1.1.3 Unless specified otherwise, any survey other than a bottom survey or a tailshaft survey may be effected by carrying out partial surveys at different times to be agreed upon with Tasneef, provided that each partial survey is adequately extensive. The splitting of a survey into partial surveys is to be such as not to impair its effectiveness.

1.2 Change of periodicity, postponement or advance of surveys

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

1.2.2

When a survey becomes overdue during a voyage, the following applies:

- In the case of a class renewal survey, Tasneef may, under exceptional circumstances, grant an extension to allow for completion of this survey provided there is documented agreement to such an extension prior to the expiry date of the Certificate of Classification, adequate arrangements have been made for the attendance of the Surveyor at the first port of call and Tasneef is satisfied that there is technical justification for such an extension. Such an extension will be granted only until arrival at the first port of call after the expiry date of the Certificate of Classification
- In the case of ordinary and intermediate surveys, no postponement is granted. Such surveys are to be completed within their prescribed windows; see [2.1.3]
- In the case of all other periodical surveys and recommendations, extension of class may be granted until the arrival of the ship at the port of destination.

Table 1 : List of Periodical Surveys

Type of Survey	Reference in this section	Reference to scope of survey (1)
Class renewal	[4]	Ch 3, Sec 3 and Ch 4
Ordinary	[5.2]	Ch 3, Sec 1 and Ch 4
Intermediate	[5.3]	Ch 3, Sec 2 and Ch 4
Bottom	[5.4]	Ch 3, Sec 4
Tailshaft	[5.5]	Ch 3, Sec 5
Boiler	[5.6]	Ch 3, Sec 6
(1) As applicable, according to the service notation assigned to the ship		

1.3 Extension of scope of survey

1.3.1 ^{Tasneef} and/or its Surveyors may extend the scope of the provisions in Chapter 3 to Chapter 5, which set forth the technical requirements for surveys, whenever and so far as considered necessary, or modify them in the case of special ships or systems.

1.3.2 The extent of any survey also depends upon the condition of the ship and its equipment. Should the Surveyor have any doubt as to the maintenance or condition of the ship or its equipment, or be advised of any deficiency or damage which may affect the class, then further examination and testing may be conducted as considered necessary.

1.4 General procedure of survey

1.4.1 The general procedure of survey consists in:

- an overall examination of the parts of the ship covered by the Rule requirements
- checking selected items covered by the Rule requirements
- attending tests and trials where applicable and deemed necessary by the Surveyor.

1.4.2 ^{Tasneef} survey requirements cannot be considered as a substitute for specification and acceptance of repairs and maintenance, which remain the responsibility of the Owner.

1.4.3 In accordance with the provisions of Ch 1, Sec 1, [3.1.4], ^{Tasneef} will, at the request of the Owner, apply the regulations of Administrations concerning the scope and periodicity of surveys when they differ from those laid down in Part A.

1.4.4 During the surveys, the Surveyor does not check that the spare parts are kept on board, maintained in working order and suitably protected and lashed.

1.4.5 As a general rule, all materials, machinery, boilers, auxiliary installations, equipment, items etc (generally referred to as "products") which are covered by the class and used or fitted on board ships inspected by ^{Tasneef} during surveys after construction are to be new and, where intended for essential services as defined in Ch 1, Sec 1, [1.2.1], tested by ^{Tasneef}

Second-hand materials, machinery, appliances and items may be used subject to the specific agreement of ^{Tasneef} and the Owner.

The requirements for the selection of materials to be used in the construction or repair of the various parts of existing ships, the characteristics of products to be used for such parts and the checks required for their acceptance are to be as stated in Part C and Part D, as applicable, or in other Parts of the Rules or as specified on approved plans. In particular, the testing of products manufactured according to quality assurance procedures approved by ^{Tasneef} and the approval of such procedures are governed by the requirements of Pt D, Ch 1, Sec 1, [3].

1.5 Appointment of another Surveyor

1.5.1 In compliance with the provisions of Ch 1, Sec 1, [2.5.1], should a disagreement arise between the Owner and the Surveyor during a survey, ^{Tasneef} may, at the request of the Owner, designate another Surveyor.

2 Definitions and procedures related to surveys

2.1 General

2.1.1 Period of class

"Period of class" means the period starting either from the date of the initial classification (see Sec 1, [4]), or from the credited date of the last class renewal survey, and expiring at the limit date assigned for the next class renewal survey.

2.1.2 Anniversary date

"Anniversary date" means the day of the month of each year in the period of class which corresponds to the expiry date of the period of class.

2.1.3 Survey time window

"Survey time window", or more simply "window", means the fixed period during which ordinary, intermediate and renewal surveys are to be carried out.

2.1.4 Overdue surveys

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

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

2.1.5 Recommendations

Any defect and/or deficiency affecting the class and to be dealt with within a specific period of time is indicated as a "recommendation". A recommendation is pending until it is cleared. Where it is not cleared by its limit date, the recommendation is overdue.

2.1.6 Memoranda

Those defects and/or deficiencies which do not affect the maintenance of class and which may therefore be cleared at the Owner's convenience and any other information deemed noteworthy for ^{Tasneef} convenience are indicated as "memoranda". Memoranda are not to be regarded as recommendations.

2.1.7 Exceptional circumstances

"Exceptional circumstances" means unavailability of dry-docking facilities; unavailability of repair facilities; unavailability of essential materials, equipment or spare parts; or delays incurred by action taken to avoid severe weather conditions.

2.1.8 Force Majeure

"Force Majeure" means damage to the ship; unforeseen inability of ^{Tasneef} to attend the ship due to government restrictions on right of access or movement of personnel; unforeseeable delays in port or inability to discharge cargo

due to unusually lengthy periods of severe weather, strikes or civil strife; acts of war; or other unforeseen events beyond the control of the parties.

2.2 Terminology related to hull survey

2.2.1 Ballast tank

A ballast tank is a tank that is being used primarily for water ballast.

As far as double skin bulk carriers are concerned, a ballast tank is a tank which is used solely for water ballast, or, where applicable, a space which is used for both cargo and ballast will be treated as a ballast tank when substantial corrosion has been found in that space. A double side tank is to be considered as a separate tank even if it is in connection with either the topside tank or the hopper side tank.

2.2.2 Spaces

Spaces are separate compartments such as holds and tanks.

2.2.3 Overall survey

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

2.2.4 Close-up survey

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

2.2.5 Transverse section

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

2.2.6 Representative tanks or spaces

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

2.2.7 Substantial corrosion

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

2.2.8 Suspect areas

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

2.2.9 Critical Structural Area

Critical Structural Areas are locations which have been identified from calculations to require monitoring and/or

which, from the service history of the subject ship or from similar or sister ships (if available), have been identified as sensitive to cracking, buckling or corrosion which would impair the structural integrity of the ship.

2.2.10 Corrosion Prevention System

A Corrosion Prevention System is normally considered a full hard protective coating.

Hard Protective Coating is usually to be epoxy coating or equivalent. Other coating systems may be considered acceptable as alternatives provided that they are applied and maintained in compliance with the Manufacturer's specifications.

2.2.11 Coating condition

Coating condition is defined as follows:

- GOOD: condition with only minor spot rusting
- FAIR: condition with local breakdown at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for poor condition
- POOR: condition with general breakdown of coating over 20% or more of areas or hard scale at 10% or more of areas under consideration.

2.2.12 Cargo area (ships carrying liquid cargo in bulk)

The cargo area is that part of the ship 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 ship over the above-mentioned spaces.

2.2.13 Cargo length area (dry cargo ships)

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

2.2.14 Prompt and Thorough Repair

A Prompt and Thorough Repair is a permanent repair completed at the time of survey to the satisfaction of the Surveyor, thereby removing the need for the imposition of any associated recommendation.

2.3 Procedures for thickness measurements

2.3.1 When required as per the scope of surveys defined below, thickness measurements are normally to be carried out under the responsibility of the Owner, in the presence of the Surveyor.

If not carried out by ^{Tasneef} itself, the thickness measurements required are to be witnessed by a Surveyor of ^{Tasneef}. The Surveyor is to be on board to the extent necessary to control the process.

2.3.2 Thickness measurements are to be carried out by a firm approved by ^{Tasneef} in accordance with the "Rules for the Certification of Service Suppliers".

2.3.3 A thickness measurement report is to be prepared. The report is to give the location of measurements, the thickness measured and the corresponding original thickness. Furthermore, the report is to include the date when the measurements were carried out, the type of measuring equipment, the names and the qualification of the operators and their signatures.

Furthermore, the report is to include the date when the measurements were carried out, the type of measuring equipment, the names and the qualification of the operators and their signatures.

The report is validated by the Surveyor.

2.3.4 The acceptance criteria are as follows:

- Maximum reduction of 25% of the original thickness of primary structures (bottom plating, side and deck plating, longitudinal and transverse bulkheads, web structures)
- Maximum reduction of 30% of the original thickness for other structures.

Such criteria are relevant to longitudinal strength and local strength. Generally, they are to be applied for ships of more than 50 metres within the cargo area.

The check of longitudinal strength is to be carried out considering the measured thickness for ships greater than 16 years of age.

The calculation is to be carried out on the basis of the requirements stated in App 1.

2.4 Conditions for surveys

2.4.1 The Owner is to provide the necessary facilities for the safe execution of surveys, as per Ch 1, Sec 1, [3.5.1].

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

2.4.3 In preparation for survey and thickness measurements and to allow for a thorough examination, all spaces are to be cleaned, including removal from surfaces of all loose accumulated corrosion scale. Spaces are to be sufficiently clean and free from water, scale, dirt, oil residues etc to reveal corrosion, deformation, fractures, damage, or other structural deterioration. However, those areas of structure whose renewal has already been decided by the Owner need only be cleaned and descaled to the extent necessary to determine the limits of the areas to be renewed. A tank entry permit is to be issued prior to entering the tank. Adequate ventilation is to be maintained during the survey, and the required ventilation is to be specified on the entry permit.

2.4.4 Sufficient illumination is to be provided to reveal corrosion, deformation, fractures, damage or other structural deterioration.

2.4.5 When examination of associated structure is required, the following applies:

- ceilings in holds and floors in the engine room are to be lifted to the necessary extent for examination of the structure
- cement or other protective sheathing is to be removed when there is any doubt as to the condition of the plating underneath or when adherence to plating is not tight
- in the case of solid ballast spaces, the solid ballast is to be partially removed for examination of the condition of the structure in way. Should doubts arise, the Surveyor may require more extensive removal of the solid ballast
- insulation of compartments intended for refrigerated cargoes is to be removed over the necessary extent for examination by the Surveyor of the condition of the structure, unless constructional arrangements make such inspections possible without removing the insulation
- where soft coatings have been applied, safe access is to be provided for the Surveyor to verify the effectiveness of the coating and to carry out an assessment of the conditions of internal structures which may include spot removal of the coating. When safe access cannot be provided, the soft coating is to be removed.

2.5 Access to structures

2.5.1 For overall survey, means are to be provided to enable the Surveyor to examine the structure in a safe and practical way.

2.5.2 For close-up survey, one or more of the following means for access, acceptable to the Surveyor, is to be provided:

- permanent staging and passages through structures
- temporary staging and passages through structures
- lifts and moveable platforms
- boats or rafts
- other equivalent means.

2.6 Equipment for surveys

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

- radiography (X or γ rays)
- ultrasonic test
- magnetic particle test
- dye penetrant test.

2.6.2 Thickness measurement is normally to be carried out by means of ultrasonic test equipment. The accuracy of the equipment is to be proven to the Surveyor as required.

2.7 Surveys during navigation and anchorage

2.7.1 (1/1/2022)

Surveys during navigation or at anchorage may be accepted provided the personnel on board give the Surveyor the necessary assistance. Precautions and procedures for carrying out the survey are to be in accordance with [2.5], [2.6] and [2.7].

2.7.2 A communication system is to be arranged between the survey party in the tank or space and the responsible officer on deck.

This system is also to include the personnel in charge of ballast pump handling if boats or rafts are used.

2.7.3 Explosimeter, oxygen-meter, breathing apparatus, lifeline and whistles are to be at hand during the survey. When boats or rafts are used, appropriate life jackets are to be available for all participants. Boats or rafts are to have satisfactory residual buoyancy and stability even if one chamber is ruptured. A safety checklist is to be provided.

2.7.4 Surveys of tanks by means of boats or rafts may only be undertaken at the sole discretion of the Surveyor, who is to take into account the safety arrangements provided, including weather forecasting and ship response under foreseeable conditions and provided the expected rise of water within the tank does not exceed 0,25m.

2.8 Repairs and maintenance during voyage

2.8.1 Where repairs to hull, machinery or other equipment, which affect or may affect the class, are to be carried out by a riding crew during a voyage, they are to be planned in advance. A complete repair procedure including the extent of the proposed repair and the need for the Surveyor's attendance during the voyage is to be submitted to ^{Tasneef} for approval sufficiently in advance. Failure to notify ^{Tasneef} in advance of the repairs may result in the suspension of class of the ship.

2.8.2 The above is not intended to include maintenance to and overhaul of the hull, machinery and equipment in accordance with the Manufacturer's recommended procedures and established marine practice, which does not require ^{Tasneef} agreement. However, any repair resulting from such maintenance and overhauls which affects or may affect the class is to be noted in the ship's log and submitted to the attending Surveyor for use in determining further survey requirements.

2.9 Prompt and thorough repairs

2.9.1 Any damage in association with wastage over the allowable limits (including buckling, grooving, detachment or fracture), or extensive areas of wastage over the allowable limits, which affects or, in the opinion of the Surveyor, will affect the vessel's structural, watertight or weathertight integrity, is to be promptly and thoroughly (see [2.2.14])

repaired. Areas to be considered include, as far as applicable, the following:

- side structure and side plating;
- deck structure and deck plating;
- bottom structure and bottom plating;
- inner bottom structure and inner bottom plating;
- inner side structure and inner side plating;
- longitudinal bulkhead structure and longitudinal bulkhead plating, where fitted;
- transverse watertight or oil-tight bulkhead structure and transverse watertight or oil-tight bulkheads plating;
- hatch covers and hatch coamings, where fitted;
- weld connection between air pipes and deck plating;
- air pipe heads installed on the exposed decks;
- ventilators, including closing devices, if any.

For locations where adequate repair facilities are not available, consideration may be given to allowing the vessel to proceed directly to a repair facility. This may require discharging the cargo and/or temporary repairs for the intended voyage.

2.9.2 Additionally, when a survey results in the identification of structural defects or corrosion, either of which, in the opinion of the Surveyor, will impair the vessel's fitness for continued service, remedial measures are to be implemented before the ship continues in service.

3 Certificate of Classification: issue, validity, endorsement and renewal

3.1 Issue of Certificate of Classification

3.1.1 A Certificate of Classification, bearing the class notations assigned to the ship and an expiry date, is issued to any classed ship.

3.1.2 A Provisional Certificate of Classification may serve as a Certificate of Classification in some cases, such as after an admission to class survey, or when ^{Tasneef} deems it necessary.

3.1.3 The Certificate of Classification or Provisional Certificate of Classification is to be made available to ^{Tasneef} Surveyors upon request.

3.2 Validity of Certificate of Classification, maintenance of class

3.2.1 According to Ch 1, Sec 1, [2.4], ^{Tasneef} alone is qualified to confirm the class of the ship and the validity of its Certificate of Classification.

3.2.2 During the class period, a Certificate of Classification is valid when it has not expired.

The class is maintained during a certain period or at a given date, when during the said period or at such date the conditions for suspension or withdrawal of class are not met.

3.2.3 At the request of the Owner, a statement confirming the maintenance of class may be issued by ^{Tasneef} based on the information in its records for that ship at the time.

This statement is issued on the assumption that the Owner has complied with the Rules, in particular with [6].

Should any information which would have prevented ^{Tasneef} from issuing the statement and which was not available at the time subsequently come to light, the statement may be cancelled.

Attention is drawn to Sec 3, [1.2], whereby ^{Tasneef} upon becoming aware of a breach of the Rules, is empowered to suspend class from the date of the breach, which may be prior to the date of the statement.

3.2.4 According to the same conditions as in [3.2.3], a statement declaring that the class is maintained "clean and free from recommendation" may be issued by ^{Tasneef} when there is no pending recommendation at that date.

3.2.5 Classification-related documents and information are liable to be invalidated by ^{Tasneef} whenever their object is found to differ from that on which they were based or to be contrary to the applicable requirements. The Owner is liable for any damage which may be caused to any third party from improper use of such documents and information.

3.3 Endorsement of Certificate of Classification

3.3.1 Text of endorsement

When surveys are satisfactorily carried out, the Certificate of Classification is generally endorsed accordingly, except as stipulated in the last sentence of this paragraph.

Each endorsement normally consists of a description summarising the surveys held and a conclusion stating the consequent class position of the ship.

In special cases the endorsement may include additional indications such as modifications to classification notations, limits imposed on navigation, special restrictions etc.

Surveys which are held as part of a Continuous Survey System require no endorsements on the Certificate of Classification.

3.3.2 Possible modifications to endorsements

^{Tasneef} reserves the right to modify the endorsements made by Surveyors.

3.4 Status of surveys and recommendations

3.4.1 Information given in the Certificate of Classification, associated endorsements, Rules and specific documents enables the Owner to identify the status of surveys and recommendations.

3.4.2 The omission of such information does not absolve the Owner from ensuring that surveys are held by the limit dates and pending recommendations are cleared to avoid any inconvenience which is liable to result from the suspension or withdrawal of class; see Sec 3.

4 Class renewal surveys

4.1 General principles

4.1.1

The first class renewal survey is to be completed within 5 years for passenger ships or 10 years for ships other than passenger ships from the date of the initial classification survey and thereafter the same periodicity from the credited date of the previous class renewal survey. However, consideration may be given by ^{Tasneef} to granting an extension for a maximum of three months after the limit date, in exceptional circumstances and provided that the ship is attended and the attending Surveyor so recommends. In such cases the next period of class will start from the limit date for the previous class renewal survey before the extension was granted.

4.1.2 For surveys completed within three months before the limit date of the class renewal survey, the next period of class will start from this limit date. For surveys completed more than three months before the limit date, the period of class will start from the survey completion date.

4.1.3 A new period of class is assigned to the ship after the satisfactory completion of the class renewal survey, and a new Certificate of Classification with relevant annexes is issued for the new period of class.

4.2 Normal system

4.2.1

When the normal system is applied, the class renewal survey may be commenced 15 months before its due date and is to be completed not before 3 months by its due date. In this case the survey may be carried out by partial surveys at different times. The number of checks to be performed at each partial survey and the interval between partial surveys are to be agreed by ^{Tasneef}. In general, the first partial survey is to include a significant number of thickness measurements, where required by the Rules. In case the class renewal survey is completed/carried out before 3 months by its due date the period of class will start from the survey completion date.

4.2.2

A class renewal survey may be commenced before 15 fifteen months by its due date at the request of the Owner. In this case, if commenced is to be completed within 15 fifteen months and class renewal survey due date is to be anticipated to include the date of commencement/execution in the renewal survey time window. The conditions for the execution of partial surveys are the same as those referred to in [4.2.1].

4.2.3

The link between the anniversary dates, the class renewal survey (when carried out according to the normal system), and the ordinary and intermediate surveys is given in Fig 1 or Fig 2, as applicable.

4.3 Continuous survey system

4.3.1 The request by the Owner for admission to the continuous survey system will be considered by ^{Tasneef} and agreement depends on the type and age of hull and machinery. This system may apply to the class renewal survey of hull (CHS) and/or machinery (CMS).

4.3.2 When the continuous survey system is to be applied, reference is to be made to Part A, Ch 2, Sec 2 [4.3] of the ^{Tasneef} Rules for the Classification of Ships.

4.3.3

The inspection periodicity to be applied is 5 years for passenger ships or 10 years for ships other than passenger ships.

4.4 Planned maintenance system (PMS) for machinery

4.4.1 A planned maintenance system may be considered as an alternative to the continuous survey system for machinery and is limited to components and systems covered by it. When such a system approved by ^{Tasneef} is implemented, a survey scheme other than those normally adopted and with intervals different from those of the continuous survey system as detailed in [4.3] may be accepted.

4.4.2 The conditions for approval of the planned maintenance system, the determination of survey item intervals and the general scope of surveys are detailed in Pt A, Ch 2, Sec 2 of the ^{Tasneef} Rules for the Classification of Ships.

4.4.3 When the planned maintenance system is applied, the notation PMS is entered on the Certificate of Classification and in the Register of Ships.

4.4.4 The planned maintenance system does not supersede the ordinary surveys and other periodical surveys.

4.4.5 A general examination of the machinery, as detailed in Ch 3, Sec 1 for ordinary surveys, is to be carried out at the end of the period of class.

4.4.6 The planned maintenance system may be discontinued at any time at the discretion of ^{Tasneef} or at the request of the Owner, and a specific arrangement devised.

5 Other periodical surveys

5.1 General

5.1.1 The different types of periodical surveys are summarised in Tab 1.

5.2 Hull and machinery ordinary surveys

5.2.1

For passenger ships, in the 5 years period of class, one ordinary survey (hull and machinery) is to be carried out. The

ordinary survey has a twelve-month window, i.e. from six months before to six months after each anniversary date.

For ships other than passenger ships, in the 10 years period of class two ordinary surveys (hull and machinery) are to be carried out. The ordinary surveys have a twelve-month window, i.e. from six months before to six months after each anniversary date.

5.3 Hull and machinery intermediate surveys

5.3.1

For ships other than passenger ships, in the 10 years period of class an intermediate survey is to be carried out. The intermediate survey has a eighteen-month window, i.e. from nine months before to nine months after each anniversary date.

5.4 Bottom survey

5.4.1 Bottom survey means the examination of the outside of the ship's bottom and related items. This examination may be carried out with the ship either in dry dock (or on a slipway) or afloat: in the former case the survey will be referred to as dry-docking survey, while in the latter case as in-water survey.

5.4.2 The Owner is to notify ^{Tasneef} whenever the outside of the ship's bottom and related items can be examined in dry dock or on a slipway.

5.4.3

For passenger ships, there is to be a minimum of two examinations of the outside of the ship's bottom and related items during each five-year class renewal survey period. One such examination is to be carried out in conjunction with the class renewal survey. In all cases the interval between any two such examinations is not to exceed 36 months.

5.4.4

For ships other than passenger ships, there is to be a minimum of two examinations of the outside of the ship's bottom and related items during each ten-years class renewal survey period. One such examination is to be carried out in conjunction with the class renewal survey. In all cases the interval between any two such examinations is not to exceed 60 months.

For hydrofoils, regardless of the service of the ship, there is to be an examination of the outside of the ship's bottom and related items every year. The bottom survey has a six-month window, i.e. six months after each anniversary date.

5.4.5

Examinations of the outside of the ship's bottom and related items of ships are normally to be carried out with the ship in dry dock. However, consideration may be given to alternate examination while the ship is afloat as an in-water survey, subject to the provisions of Ch 3, Sec 4, [3]. Special consideration is to be given to ships of 15 years or over before being permitted to have such examinations.

5.4.6 (1/1/2022)

The interval between examinations of the outside of the ship's bottom and related items, as specified in [5.4.3] and [5.4.5], may be greater in one of the following cases:

- ships operating in fresh water
- ships operating in certain harbours
- non-propelled units.

In the above cases, the duration of intervals is defined by the Society on a case by case basis, taking into account:

- the age of the ship or unit,
- the operating history.

If necessary, in the above cases it is not required to meet the alternate examinations as mentioned in [5.4.5].

Water suction inspections, as per Ch 3, Sec 4, [3.1.3], can be substituted by:

- external examination during IWS,
- water suction box and valves examination from inside.

For ships of unusual characteristics or engaged on special services, means of underwater inspection equivalent to the bottom survey in dry condition may be considered as an alternative by the Society, particularly when a suitable high resistance paint is applied to the underwater portion of the hull or an approved system of impressed current for external cathodic protection is fitted.

5.5 Tailshaft survey

5.5.1 Definition

Tailshaft survey means survey of propeller shafts and tube shafts (hereafter referred to as tailshafts) as well as survey of other propulsion systems.

5.5.2 Tailshaft complete survey (1/1/2022)

Tailshafts are to be submitted to complete examination at the periodicity specified below and summarised in Fig 1 based on the type of shaft and its design, but with a maximum interval between successive examinations not exceeding the periodicity according to items a), b) and c) below by more than six months. Consideration may be given at the discretion of ^{Tasneef} to any special circumstances justifying an extension of these intervals.

- a) Where the tailshaft is fitted with continuous liners, or approved oil sealing glands, or made of corrosion-resistant material, the periodicity of complete surveys is:
 - 1) 5 years for single shafting arrangements
 - 2) 10 years for multi-shafting arrangements.
- b) For case a) 1) these periodicities may be increased to 10 years in the following circumstances:
 - where the propeller is fitted keyless to the shaft taper, the shaft is protected from water, the design details are approved, and a non-destructive examination of the forward part of the aft shaft taper is performed at each survey by an approved crack-detection method;
 - where the propeller is fitted to a keyed shaft taper the design details of which comply with the applicable requirements in Pt C, Ch 1, Sec 7, and a non-destructive examination 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 is performed at each survey by an approved crack-detection method;

- where the propeller is fitted to a solid flange coupling at the aft end of the shaft, the shaft and its fittings are not exposed to corrosion, the design details are approved, and a non-destructive examination of the after flange fillet area of the shaft is performed at each survey by an approved crack-detection method.
- c) In all other cases the periodicity of complete surveys is four years (5 years).

5.5.3 Tailshaft modified survey

A modified survey of the tailshaft is an alternate way of examination whose scope is given in Ch 3, Sec 5. It may be accepted at alternate surveys for tailshafts described in [5.5.2] provided that:

- they are fitted with oil lubricated bearings and approved oil sealing glands
- the shaft and its fittings are not exposed to corrosion
- the design details are approved
- the clearances of the aft bearing are found to be in order
- the oil and the oil sealing arrangements prove effective
- lubricating oil analyses are carried out regularly at intervals not exceeding six months and oil consumption is recorded at the same intervals.

5.5.4 Tailshaft Monitoring System (MON-SHAFT)

Where, in addition to the conditions stated in [5.5.3] for modified survey, the additional class notation **MON-SHAFT** is assigned, the tailshaft need not be withdrawn at both the complete and modified survey provided that all condition monitoring data is found to be within permissible limits and the remaining requirements for the respective surveys are complied with.

5.5.5 Other propulsion systems

Driving components serving the same purpose as the tailshaft in other propulsion systems, such as directional propellers, vertical axis propellers, water jet units, dynamic positioning systems and thruster assisted mooring systems, are to be submitted to periodical surveys at intervals not exceeding five years.

5.6 Boiler survey

5.6.1

Water tube boilers used for main propulsion, including reheat boilers, all other boilers for essential service, and boilers for non-essential service having working pressure exceeding 0,35 N/mm² and a heating surface exceeding 4,5 m², are to be surveyed internally. There is to be a minimum of two internal examinations during each five-year period. In all cases the interval between any two such examinations is not to exceed 36 months.

5.6.2

For ships of ten years of age and over fitted with one single boiler supplying steam for main propulsion, the interval between two boiler surveys may be specially considered.

5.6.3

External survey of boilers, including testing of safety and protective devices and of safety valves using their relieving gear, is to be carried out at the ordinary survey, within the relevant window.

For exhaust gas heated economisers, the safety valves are to be tested by the Chief Engineer during sailing within the ordinary survey window. This test is to be recorded in the log-book for review by the attending Surveyor prior to crediting the ordinary survey of machinery.

5.6.4 An extension of the internal examination of the boiler up to 3 months beyond the due date can be granted in exceptional circumstances (see Note 1). The extension may be granted by ^{Tasneef} provided a survey is carried out in accordance with the provisions given in Ch 3, Sec 6, [1.1.6].

Note 1: "Exceptional circumstances" means, for example, unavailability of repair facilities, unavailability of essential materials, equipment or spare parts, or delays incurred by action taken to avoid severe weather conditions.

6 Occasional surveys**6.1 General**

6.1.1 An occasional survey is any survey which is not a periodical survey. The survey may be defined as an occasional survey of hull, machinery, boilers, refrigerating plants etc, depending on the part of the ship concerned.

Where defects are found, the Surveyor may extend the scope of the survey as deemed necessary.

6.1.2

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

- updating of classification documents (e.g. change of the Owner, name of the ship, flag)
- damage or suspected damage
- repair or renewal work
- Port/Flag State Control inspections
- alterations or conversion
- quality system audits
- postponement of surveys or recommendations.

6.2 Damage and repair surveys

6.2.1 In the event of damage which affects or may affect the class of the ship, the Owner is to apply to ^{Tasneef} for a survey. Such application is to be made as soon as possible to enable the Surveyor to ascertain the extent of the damage and necessary repairs, if any.

Note 1: Whenever a ship is fitted with a helicopter platform which is made of aluminium or other low melting metal construction that is not made equivalent to steel, and a fire occurred on the platform or in close proximity, the platform is to be subjected to a structural survey to determine its suitability for further use.

6.2.2 If, after sustaining damage, the ship calls at a port where ^{Tasneef} is not represented, the Owner is to notify ^{Tasneef} forthwith, supply all available information regarding the

damage and make arrangements for the ship to be surveyed in the nearest port where ^{Tasneef} is represented.

6.2.3 All repairs to hull, machinery and equipment which may be required in order for a ship to retain its class are to be to the satisfaction of the Surveyor.

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

6.2.4 Damage and partial or temporary repairs considered acceptable by the Surveyor for a limited period of time are the subject of an appropriate recommendation.

6.2.5 Damage or repairs required by the Surveyor to be re-examined after a certain period of time are the subject of an appropriate recommendation.

6.3 Conversions, alterations and repairs

6.3.1 Conversions, alterations or repairs of/to structures and arrangements affecting the class are to be carried out in accordance with the requirements of ^{Tasneef} and to its satisfaction. Where necessary, documentation is to be submitted to ^{Tasneef} and/or made available to the attending Surveyor.

6.3.2 Materials and equipment used for conversions, alterations or repairs are generally to meet the requirements of the Rules for new ships built under survey; see Sec 1, [2.1.5].

6.4 Quality System audits

6.4.1 ^{Tasneef} reserves the right to carry out occasional surveys in order to conduct audits either as deemed necessary in pursuance of its internal Quality System or as required by external organisations (e.g. IACS, flag Administrations).

6.4.2 These surveys may also be attended by auditors external to ^{Tasneef}

6.4.3 The scope of these surveys is determined by ^{Tasneef}

7 Change of ownership**7.1 General**

7.1.1 In the case of change of ownership, the ship retains its current class with ^{Tasneef} provided that:

- ^{Tasneef} is informed of the change sufficiently in advance to carry out any survey deemed appropriate, and
- the new Owner signs the appropriate request, involving acceptance of ^{Tasneef} general conditions and Rules. This request covers inter alia the condition of the ship when changing ownership.

Note 1: The ship'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 damage or repairs to the ship of which ^{Tasneef} has not been advised by the former or, as the case may be, new Owner.

Note 2: No information whatsoever related to the class of the ship will be provided or confirmed to any third party, unless the appro-

appropriate request for information is duly completed and signed by the party making the request and the authorisation of the current Owner is obtained.

8 Lay-up and re-commissioning

8.1 General principles

8.1.1 A ship put out of commission may be subject to specific requirements for maintenance of class, as specified below, provided that the Owner notifies ^{Tasneef} of the fact.

If the Owner does not notify ^{Tasneef} of the laying-up of the ship or does not implement the lay-up maintenance program, the ship'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 Sec 3.

8.1.2

The lay-up maintenance program provides for a "laying-up survey" to be performed at the beginning of lay-up and subsequent "ordinary lay-up condition surveys" to be performed in lieu of the normal ordinary surveys which are no longer required to be carried out as long as the ship remains laid-up. The minimum content of the lay-up maintenance program as well as the scope of these surveys will be considered case-by-case.

The other periodical surveys which become overdue during the lay-up period may be postponed until the re-commissioning of the ship.

8.1.3

Where the ship has an approved lay-up maintenance program and its period of class expires, the period of class is

extended until it is re-commissioned, subject to the satisfactory completion of the ordinary lay-up condition surveys as described in [8.1.2].

8.1.4 The periodical surveys carried out during the lay-up period may be credited, either wholly or in part, at the discretion of ^{Tasneef} 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 re-commissioning of the ship and/or the expiry dates of the next periodical surveys of the same type.

8.1.5 When a ship is re-commissioned, the Owner is to notify ^{Tasneef} and make provision for the ship to be submitted to the following surveys:

- an occasional survey prior to re-commissioning, the scope of which depends on the duration of the lay-up period
- all periodical surveys which have been postponed in accordance with [8.1.2], taking into account the provisions of [8.1.4].

8.1.6 Where the previous period of class expired before the re-commissioning and was extended as stated in [8.1.3], in addition to the provisions of [8.1.5] a complete class renewal survey is to be carried out prior to re-commissioning. Those items which have been surveyed in compliance with the class renewal survey requirements during the 15 months preceding the re-commissioning may be credited. A new period of class is assigned from the completion of this class renewal survey.

Figure 1 : Links between anniversary date and ordinary and class renewal surveys

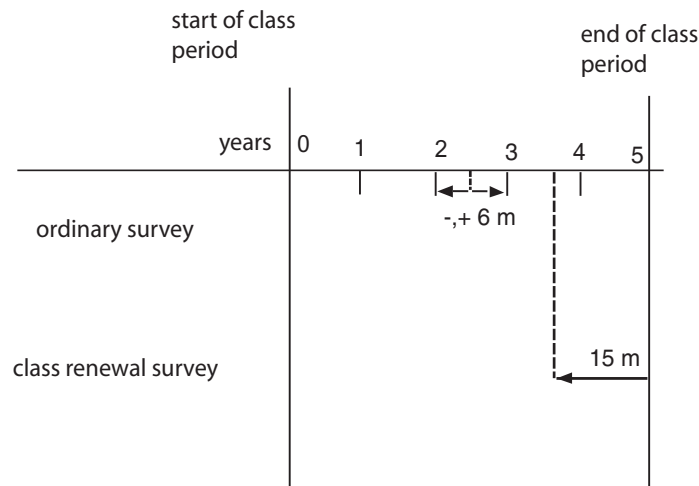
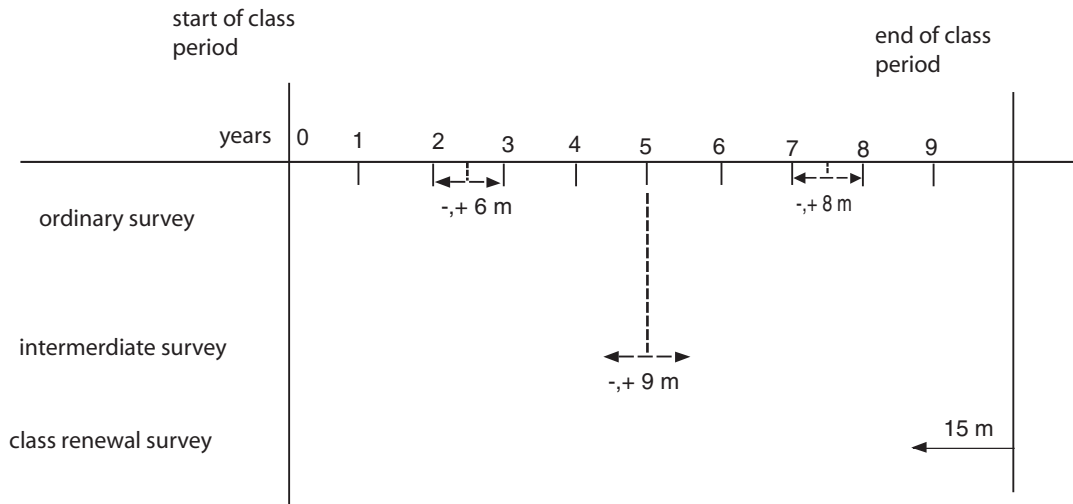


Figure 2 : Links between anniversary date and ordinary, intermediate and class renewal surveys for other ships different from passenger ships



SECTION 3

SUSPENSION AND WITHDRAWAL OF CLASS

1 General

1.1 Discontinuance of class

1.1.1 The class may be discontinued either temporarily or permanently. In the former case it is referred to as "suspension" of class, in the latter case as "withdrawal" of class. In both these cases, the class is invalidated in all respects. In the case of withdrawal, a specific notation is entered in the supplement to the Register of Ships, until the ship is deleted from the Register.

1.2 Suspension of class

1.2.1 The class may be suspended either automatically or following the decision of ^{Tasneef}. In any event, the ship will be considered as not retaining its class from the date of suspension until the date when class is reinstated.

1.2.2 The class is automatically suspended when one or more of the following circumstances occur:

- when a ship is not operated in compliance with the Rule requirements, such as in cases of services or conditions not covered by the service notation, or trade outside the navigation restrictions for which the class was assigned
- when a ship proceeds to river with a draught that is greater than that assigned
- when the Owner fails to inform ^{Tasneef} in order to submit the ship to a survey after defects or damage affecting the class have been detected
- when repairs, alterations or conversions affecting the class are carried out either without requesting the attendance of ^{Tasneef} or not to the satisfaction of the Surveyor. For voyage repairs, reference is to be made to Sec 2, [2.9].

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, ^{Tasneef} may require any additional surveys deemed necessary taking into account the condition of the ship and the cause of the suspension.

1.2.3 Suspension and reinstatement of class in the case of overdue class renewal survey

Owners are to be notified that the Certificate of Classification expires and classification is automatically suspended from the certificate expiry date in the event that the class renewal survey has not been completed or is not under attendance for completion prior to resuming trading, by the due date.

Classification will be reinstated upon satisfactory completion of the surveys due. Such surveys are to be credited from the date originally due.

Under "exceptional circumstances", as defined in Sec 2, [2.1.7], ^{Tasneef} may grant an extension not exceeding three months to allow for completion of the class renewal survey, provided that the ship is attended and the attending Surveyor(s) so recommend(s) after the following have been carried out:

- a) re-examination of recommendations;
- b) progression of the class renewal survey as far as practicable.

In the case where dry-docking is due prior to the end of the class extension, an underwater examination is to be carried out by an approved diving company. An underwater examination by an approved company may be dispensed with in the case of an extension of the dry-docking survey not exceeding 36 months for passenger ships and 60 months for ships other than passenger ships, provided the ship is without outstanding recommendations regarding underwater parts.

If the Certificate of Classification will expire when the ship is expected to be in navigation, an extension to allow for completion of the class renewal survey may be granted provided that there is documented agreement to such an extension prior to the expiry date of the certificate, that satisfactory arrangements have been made for attendance of the Surveyor at the first port of call, and that ^{Tasneef} is satisfied that there is technical justification for such an extension. Such an extension is to be granted only until arrival at the first port of call after the expiry date of the certificate. However, if owing to "exceptional circumstances" the class renewal survey cannot be completed at the first port of call, the procedure given above in the event of "exceptional circumstances" may be followed, but the total period of extension is in no case to be longer than three months after the original due date of the class renewal survey.

1.2.4 Suspension and reinstatement of class in the case of overdue intermediate survey

Owners are to be notified that the Certificate of Classification becomes invalid, and classification is automatically suspended, if the intermediate survey has not been completed within nine months of the due date of the intermediate survey in each periodical survey cycle, unless the ship is under attendance for completion of the intermediate survey.

Classification will be reinstated upon satisfactory completion of the surveys due. Such surveys are to be credited from the date originally due.

1.2.5 Suspension and reinstatement of class in the case of overdue ordinary survey

Owners are to be notified that the Certificate of Classification becomes invalid, and classification is automatically suspended, if the ordinary survey has not been completed within six months of the due date of the ordinary survey, unless the ship is under attendance for completion of the ordinary survey.

Classification will be reinstated upon satisfactory completion of the surveys due. Such surveys are to be credited from the date originally due.

1.2.6 Suspension of class in the case of overdue continuous survey item(s)

Continuous survey item(s) due or overdue at the time of the ordinary survey is (are) to be dealt with. The ship's class will be subject to a suspension procedure if the item(s) is (are) not surveyed, or postponed by agreement.

1.2.7 Other cases of suspension of class

In addition to the circumstances for which automatic suspension may apply, the class of a ship may also be suspended following the decision of ^{Tasneef}

- when one or more surveys are not held by their limit dates - see Sec 2, [2.1.4] - or the dates stipulated by the Society also taking into account any extensions granted in accordance with the provisions of Part A
- when, due to reported defects, ^{Tasneef} considers that a ship is not entitled to retain its class even on a temporary basis (pending necessary repairs or renewals, etc)
- in other circumstances which ^{Tasneef} will consider on their merits (e.g. in the event of non-payment of fees or where the Owner fails to subject the ship to the occasional survey as per the requirement in Sec 2, [6.2.1]).

Suspension of class decided by ^{Tasneef} 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.

1.2.8 Laid-up ships

Ships laid-up in accordance with the requirements indicated in Sec 2, [8.1.1] prior to surveys becoming due need not be suspended when surveys addressed above become overdue. However, ships which are laid-up after being suspended as a result of surveys being overdue, remain suspended until the overdue surveys are completed.

1.2.9 Voyage to demolition

When it is intended to take a ship on a demolition voyage with any periodical survey overdue, the ship's class suspension may be held in abeyance and consideration may be given to allowing the ship to proceed on a single direct ballast voyage from the lay-up or final discharge port to the demolition yard. In such cases a short-term Certificate of Classification with conditions for the voyage noted may be issued provided the attending Surveyor finds the ship in satisfactory condition to proceed on the intended voyage.

1.2.10 Force Majeure

If, due to circumstances beyond the Owner's or ^{Tasneef} control, as defined in Sec 2, [2.1.8], the ship is not in a port

where the overdue surveys can be completed at the expiry of the periods allowed above, ^{Tasneef} may allow the ship to sail, in class, directly to an agreed discharge port and if necessary, from there, in ballast, to an agreed port at which the survey will be completed, provided ^{Tasneef}

- a) examines the ship's records;
- b) carries out the due and/or overdue surveys and examination of recommendations at the first port of call when there is unforeseen inability of ^{Tasneef} to attend the ship in the present port, and
- c) has satisfied itself that the ship is in condition to sail for one trip to a discharge port and subsequent ballast voyage to a repair facility if necessary. (Where there is unforeseen inability of ^{Tasneef} to attend the ship in the present port, the Master is to confirm that his ship is in condition to sail to the nearest port of call).

If class has already been automatically suspended in such cases, it may be reinstated subject to the conditions prescribed in this item.

1.2.11 Suspension and reinstatement of class in the case of overdue recommendations

Each recommendation will be assigned a due date for completion. Owners will be notified of these dates and that the ship's class will be subject to a suspension procedure if the item is not dealt with, or postponed by agreement, by the due date.

Classification will be reinstated upon verification that the overdue recommendation has been satisfactorily dealt with.

1.3 Withdrawal of class

1.3.1 The Society will withdraw the class of a ship in the following cases:

- at the request of the Owner
- when the causes that have given rise to a suspension currently in effect have not been removed within six months of the date of suspension. However, ^{Tasneef} may withdraw the class of the ship before the end of the six-month period where it deems it appropriate. A longer suspension may be granted at the ^{Tasneef} discretion when the ship is not trading as in cases of lay-up, awaiting disposition in the case of a casualty or attendance for reinstatement
- when the ship is reported as a constructive total loss
- when the ship is lost
- when the ship is reported scrapped.

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

1.3.2 When the withdrawal of class of a ship comes into effect, ^{Tasneef} will:

- forward the Owner written notice
- delete the ship from the Register of Ships
- notify the flag Administration
- make the information available to the Underwriters, at their request.

1.4 Suspension/withdrawal of additional class notations

1.4.1 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.

The same procedure may apply to service notations of ships which are assigned more than one service notation.

1.4.2 The suspension or withdrawal of an additional class notation or a service notation (where a ship is assigned more than one service notation) generally does not affect the class.

APPENDIX 1

CRITERIA FOR LONGITUDINAL STRENGTH OF THE HULL GIRDER

1 General

1.1

1.1.1 These criteria are to be used for the evaluation of longitudinal strength of the ship's hull girder as required by Sec 2, [2.3.5].

In order for the evaluation of the ship's longitudinal strength to be recognised as valid, fillet welding between longitudinal internal members and hull envelopes is to be in sound condition so as to keep integrity of longitudinal internal members with hull envelopes.

2 Calculation of transverse sectional areas of deck and bottom flanges of hull girder

2.1

2.1.1 The transverse sectional areas of deck zones and bottom zones of the ship's hull girder are to be calculated by using the thickness measured, renewed or reinforced, as appropriate, during the class renewal survey.

2.1.2 If the diminution of sectional areas of either deck or bottom zones exceeds 10 % of their respective as-built area (i.e. original sectional area when the ship was built), either of the following measures is to be taken:

- a) renewal or reinforcement of the deck or bottom zones so that the actual sectional area is not less than 90% of the as-built area; or
- b) calculation of the actual section moduli (Z_{act}) of the transverse section of the ship's hull girder by applying the calculation method specified in [4], using the thickness measured, renewed or reinforced, as appropriate, during the class renewal survey.

3 Requirements for transverse section modulus of hull girder

3.1

3.1.1 The actual section moduli (Z_{act}) of the transverse section of the ship's hull girder calculated in accordance with [2.1.2]b) above is not to be less than 90% of the required section modulus Z_R or $Z_{R,MIN}$ for new buildings specified in Pt B, Ch 6, Sec 2, [4.2], whichever is the greater, provided that in no case is Z_{act} less than the diminution limit of the minimum section modulus (Z_{MC}) as specified in [5].

4 Calculation criteria of section moduli of midship section of hull girder

4.1

4.1.1 When calculating the transverse section modulus of the ship's hull girder, the sectional area of all continuous longitudinal strength members is to be taken into account.

4.1.2 Large openings, i.e. openings exceeding 2,5m in length or 1,2m in breadth and scallops, where scallop welding is applied, are always to be deducted from the sectional areas used in the section modulus calculation.

4.1.3 Smaller openings (manholes, lightening holes, single scallops in way of seams, etc.) need not be deducted provided that the sum of their breadths or shadow area breadths in one transverse section does not reduce the section modulus at deck or bottom by more than 3% and provided that the height of lightening holes, draining holes and single scallops in longitudinals or longitudinal girders does not exceed 25% of the web depth, for scallops of maximum 75mm.

4.1.4 A deduction-free sum of smaller opening breadths in one transverse section in the bottom or deck area of $0,06(B - \Sigma b)$ (where B = breadth of ship, Σb = total breadth of large openings) may be considered equivalent to the above reduction in section modulus.

4.1.5 The shadow area is to be obtained by drawing two tangent lines with an opening angle of 30°.

4.1.6 The deck modulus is related to the moulded deck line at side.

4.1.7 The bottom modulus is related to the base line.

4.1.8 Continuous trunks and longitudinal hatch coamings are to be included in the longitudinal sectional area provided they are effectively supported by longitudinal bulkheads or deep girders. The deck modulus is then to be calculated by dividing the moment of inertia by the following distance, provided this is greater than the distance to the deck line at side:

$$y_L = y(0,9 + 0,2x/B)$$

where:

- y : distance from neutral axis to top of continuous strength member,
- x : distance from top of continuous strength member to centreline of the ship.

x and y to be measured to the point giving the largest value of y_L .

4.1.9 Longitudinal girders between multi-hatchways are to be considered by means of special calculations.

5 Diminution limit of minimum longitudinal strength of ships in service

5.1

5.1.1 The diminution limit of the minimum section modulus Z_{mc} , in cm^3 , of ships in service is given by the following formula:

$$Z_{mc} = cL^2B(C_b + 0,7)k$$

where:

- L : length of ships. L is the distance, in meters, on the summer load waterline from the fore side of stem to the after side of the rudder post, or the centre of the rudder stock if there is no rudder post. L is not to be less than 96%, and need not be greater than 97%, of the extreme length on the summer load waterline. In ships with unusual stern and bow arrangement the length L may be specially considered.
- B : greatest moulded breadth in metres.
- C_b : moulded block coefficient at draught d corresponding to summer load waterline, based on L

and B. C_b is not to be taken less than 0,60, according to the formula:

$$C_b = \frac{\text{moulded displacement}(\text{m}^3)\text{at draught } d}{LBd}$$

- c : 0,9 c_n (the value of C_n is given in Tab 1)
- k : material factor, e.g:
 k = 1 for mild steel with yield stress of 235 N/mm² and over;
 k = 0,78 for high tensile steel with yield stress of 315 N/mm² and over,
 k = 0,72 for high tensile steel with yield stress of 355 N/mm² and over.

5.1.2 Scantlings of all continuous longitudinal members of the ship's hull girder based on the section modulus requirement in [5.1.1] above are to be maintained within 0,4 L amidships. However, in special cases, based on consideration of the type of ship, hull form and loading conditions, the scantlings may be gradually reduced towards the end of 0,4 L part, bearing in mind the desire not to inhibit the ship's loading flexibility.

5.1.3 However, the above standard may not be applicable to ships of unusual type or design, e.g. for ships of unusual main proportions and/or weight distributions.

Table 1 : Values of C_n

	L < 90	90 ≤ L < 300	300 ≤ L ≤ 350	350 < L ≤ 500
C_n	$(118 - 0,36L) \cdot L/1000$	$10,75 - [(300 - L)/100]^{1,5}$	10,75	$10,75 - [(L - 350)/150]^{1,5}$

APPENDIX 2

ACCEPTANCE OF SURVEYS WITH DIFFERENT INTERVALS, EXTENT AND SCOPE

1 General

1.1

1.1.1

As per Part A, Ch 1, Sec 1, [2.2.7] due to specific Flag Administration regulations, at ^{Tasneef} discretion different survey intervals, extent and scope may be accepted.

This Appendix only applies to surveys with intervals, extent and scope different from those given in this Part A, indicated in the following items.

Unless otherwise specified in this Appendix, the applicable technical survey requirements depending on each specific survey, ship type, service and additional class notation remain those indicated in the applicable Chapters and Sections of this Part A.

2 Definition and symbols

2.1

2.1.1 (1/3/2019)

Symbols used in Tables 1 to 10 have the following meaning:

STW : Survey Time Window expressed in months

TS : type of survey that is to be carried out in respect of those indicated in the concerned Table

DRY : Bottom survey carried out in dry condition

IWS : Bottom survey carried out with ship afloat

CM : complete Tailshaft survey

MD : modified Tailshaft survey

MON : Tailshaft survey according to MON-SHAFT additional class notation requirements.

Tables 2 to 10 indicate the required survey for each year in the class period.

The first column is indicating the years of the class period and the other columns list only surveys for which a different schedule is required.

3 Ships flying south American flags other than Brazil

3.1

3.1.1 (1/7/2015)

Tables 1 to 4 apply, at the request of the Interested Parties, to ships flying south American flags that apply the "Hydrovia agreement" (ALADI agreement for navigation in the Hydrovia Paraná - Paraguay).

Table 5 applies, at the request of the Interested Parties, to non-propelled units flying Argentinian Flag.

Table 1 : PROPELLED SHIPS-PASSENGER SHIPS (ro-ro passenger ships included) - 4 years class period

Year in the class period	Hull and Mach Intermediate (1)	Hull and Mach Renewal	Bottom (DRY) or (IWS)	Tailshaft (CM) or (MD) or (MON)	Other propulsion systems
1	-	-	-	-	-
2	STW (-6,+6)	-	-	-	-
3	-	-	-	-	-
4	-	STW (-15,+0)	STW (-0, +0) TS(DRY)	STW (-0, +6) TS(CM)	STW (-0, +6)
(1) Intermediate survey with ordinary survey criteria, ordinary surveys not applicable					

Table 2 : PROPELLED SHIPS-TANKERS (oil, gas, chemical) - 6 years class period

Year in the class period	Hull Intermediate (1)	Mach Intermediate (1)	Hull and Mach Renewal	Bottom (DRY) or (IWS)	Tailshaft (CM) or (MD) or (MON)	Other propulsion systems
1	-	-	-	-	-	-
2	-	STW (-6,+6)	-	-	-	-
3	STW (-6,+6)	-	-	-	-	-
4	-	STW (-6,+6)	-	-	-	-
5	-	-	-	-	-	-
6	-	-	STW (-15,+0)	STW (-0, +0) TS(DRY)	STW (-0, +6) TS(CM)	STW (-0, +6)

(1) Intermediate survey with ordinary survey criteria, ordinary surveys not applicable

Table 3 : PROPELLED SHIPS-OTHER THAN PASSENGER SHIPS (ro-ro passenger ships included) AND OTHER THAN TANKERS (oil, gas, chemicals) - 6 years class period

Year in the class period	Hull and Mach Intermediate (1)	Hull and Mach Renewal	Bottom (DRY) or (IWS)	Tailshaft (CM) or (MD) or (MON)	Other propulsion systems
1	-	-	-	-	-
2	-	-	-	-	-
3	STW (-6,+6)	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	-	STW (-15,+0)	STW (-0, +0) TS(DRY)	STW (-0, +6) TS(CM)	STW (-0, +6)

(1) Intermediate survey with ordinary survey criteria, ordinary surveys not applicable

Table 4 : NON-PROPELLED UNITS - 8 years class period (1/7/2015)

Year in the class period	Hull and Mach Ordinary	Hull and Mach Intermediate	Hull and Mach Renewal	Bottom (DRY) or (IWS)
1	-	-	-	-
2	STW (-6,+6)	-	-	-
3	-	-	-	-
4	-	STW (-6,+6)	-	-
5	-	-	-	-
6	STW (-6,+6)	-	-	-
7	-	-	-	-
8	-	-	STW (-15, +0)	STW (-0, +0) TS(DRY)

Table 5 : NON-PROPELLED UNITS - 10 years class period (only for Argentinian Administration) (1/7/2015)

Year in the class period	Hull and Mach Ordinary	Hull and Mach Intermediate	Hull and Mach Renewal	Bottom (DRY) or (IWS)
1	-	-	-	-
2,5	STW (-6,+6)	-	-	-
4	-	-	-	-
5	-	STW (-6,+6)	-	-
6	-	-	-	-
7,5	STW (-6,+6)	-	-	-
9	-	-	-	-
10	-	-	STW (-15, +0)	STW (-0, +0) TS(DRY)

4 Ships flying Brazilian flag

4.1

4.1.1 (1/3/2019)

Tables 6 to 9 apply, at the request of the Interested Parties, to ships flying Brazilian flag that apply the "Inland navigation" as per NORMAM 02.

Table 6 : PROPELLED SHIPS-PASSENGER SHIPS over 20 GT (ro-ro passenger ships included) - 5 years class period (1/3/2019)

Year in the class period	Hull and Mach Annual	Hull and Mach Renewal	Bottom (DRY)	Tailshaft (CM) or (MD) or (MON) (1)	Other propulsion systems (1)
1	STW (-3,+3)	-	-	-	-
2	STW (-3,+3)	-	-	-	-
3	STW (-3,+3)	-	-	-	-
4	STW (-3,+3)	-	-	-	-
5		STW (-3,+0)	STW (-0, +0) TS(DRY)	STW (-0, +6) TS(CM)	STW (-0, +6)
(1) Only for class purpose					

Table 7 : PROPELLED SHIPS-TANKERS (oil, gas, chemical) - 5 years class period (1/3/2019)

Year in the class period	Hull and Mach Annual	Hull and Mach Renewal	Bottom (DRY)	Tailshaft (CM) or (MD) or (MON) (1)	Other propulsion systems (1)
1	STW (-3,+3)	-	-	-	-
2	STW (-3,+3)	-	-	-	-
3	STW (-3,+3)	-	-	-	-
4	STW (-3,+3)	-	-	-	-
5		STW (-3,+0)	STW (-0, +0) TS(DRY)	STW (-0, +6) TS(CM)	STW (-0, +6)
(1) Only for class purpose					

Table 8 : Cargo ship other than indicated in Tab 1 and Tab 2 - 5 years class period (1/3/2019)

Year in the class period	Hull and Mach Annual	Hull and Mach Renewal	Bottom (DRY)	Tailshaft (CM) or (MD) or (MON) (1)	Other propulsion systems (1)
1	STW (-3,+3)	-	-	-	-
2	STW (-3,+3)	-	-	-	-
3	STW (-3,+3)	-	-	-	-
4	STW (-3,+3)	-	-	-	-
5		STW (-3,+0)	STW (-0, +0) TS(DRY)	STW (-0, +6) TS(CM)	STW (-0, +6)
(1) Only for class purpose					

Table 9 : NON-PROPELLED UNITS - 10 years class period (1/3/2019)

Year in the class period	Hull and Mach Annual	Hull and Mach Intermediate	Hull and Mach Renewal	Bottom (DRY) (or (IWS)) (1)
1	STW (-3,+3)	-	-	-
2	STW (-3,+3)	-	-	-
3	STW (-3,+3)	-	-	-
4	STW (-3,+3)	-	-	-
5	-	STW (-6,+6)	-	STW (-6, +6) (2)
6	STW (-3,+3)	-	-	-
7	STW (-3,+3)	-	-	-
8	STW (-3,+3)	-	-	-
9	STW (-3,+3)	-	-	-
10	-	-	STW (-3, +0)	STW (-3, +0)
(1) Only following authorization for bottom survey to be done conjunctly with intermediate survey				
(2) To be done conjunctly with intermediate survey				

5 Ships with statutory Cargo Ship Certificate validity less than 10 years

the request of the Interested Parties, to ships with a statutory Cargo Ship Certificate validity less than 10 years.

5.1

5.1.1 (1/3/2019)

Tab 10 (5 years class period) applies to ships flying European Flags certified according to AND requirements or, at

Table 10 : Cargo ships - 5 years class period (1/7/2015)

Year in the class period	Hull and Mach Ordinary (1)	Hull and Mach Renewal	Bottom (DRY) or (IWS)	Tailshaft (CM) or (MD) or (MON)	Other propulsion systems
1	-	-	-	-	-
2,5	STW (-6,+6)	-	-	-	-
4	-	-	-	-	-
5	-	STW (-15,+0)	STW (-0, +0)	STW (-0, +6)	STW (-0, +6)
(1) Intermediate survey surveys not applicable					

Part A
Classification and Surveys

Chapter 3
SCOPE OF SURVEYS

- SECTION 1 ORDINARY SURVEY**
- SECTION 2 INTERMEDIATE SURVEY**
- SECTION 3 CLASS RENEWAL SURVEY**
- SECTION 4 BOTTOM SURVEY**
- SECTION 5 TAILSHAFT SURVEY**
- SECTION 6 BOILER SURVEY**

SECTION 1

ORDINARY SURVEY

1 Principles of classification

1.1 Purpose of the Rules

1.1.1

The requirements of this Section apply to ordinary surveys of all ships. The specific requirements for ordinary surveys related to service notations assigned to ships are addressed in Chapter 4.

1.1.2

At the time of ordinary surveys, the ship is to be generally examined. The survey is to include a visual inspection of the hull, equipment and machinery of the ship and some tests thereof, so far as necessary and practicable in order to verify that the ship is in a satisfactory and efficient general condition and is properly maintained.

1.1.3 Owners are reminded that, in compliance with the requirements in Ch 2, Sec 2, [6.4], any modification to the ship's hull, equipment and machinery affecting its classification is to be made known to ^{Tasneef}

2 Hull

2.1 Scope

2.1.1 The survey is to consist of an examination for the purpose of ensuring, as far as practicable, that the hull, hatch covers, hatch coamings, closing appliances, equipment and related piping are maintained in a satisfactory condition.

2.2 Hull and hull equipment

2.2.1 The survey is to include a general external examination and testing, where appropriate, verifying the efficient condition of the following items, as applicable:

- outer shell plating above the waterline, relevant shell doors and accessible parts of the rudder(s)
- plating of freeboard deck and exposed decks, superstructures, with their openings and means of closure
- openings on exposed decks, with their coamings and their means of closure and securing arrangements (for cargo hatchways see [2.3])
- sidescuttles and deadlights, chutes and other openings with their means of closure
- bulwarks, guard rails, freeing ports, gangways and life-lines, ladders
- scuppers and sanitary discharges, valves on discharge lines and their controls
- ventilators, air pipes, overflow pipes and gas vent pipes, with their means of closure and flame screens, where required

- all automatic air pipe heads installed on exposed decks (see Note 2). This requirement is not applicable to passenger ships
- fittings and appliances for timber deck cargoes, where applicable
- freeboard marks on the ship's sides
- deck equipment such as lifeboat davit foundations, bollards, fairleads, hawse pipes etc, masts and associated rigging, including lightning conductors
- equipment of chain cables for anchors, windlass, mooring lines and mooring winches, where required
- watertight bulkheads, their watertight doors and associated local and remote controls, and their watertight penetrations
- main and auxiliary steering arrangements, including their associated equipment and control systems, and manoeuvring gear
- fire divisions and fire doors, dampers in ventilation ducts, means of closure of skylights and other openings
- confirmation that emergency escape routes from accommodation and service spaces are satisfactory
- accessible cargo holds, in particular in areas likely to be damaged by cargo handling
- confirmation that the drainage from enclosed cargo spaces situated on the freeboard deck is satisfactory
- engine room and other dry spaces
- availability of approved stability documentation.

Note 1: Due attention is also to be given to fuel oil piping passing through ballast tanks, which is to be pressure tested where doubts arise.

Note 2: Air pipe heads installed on exposed decks are those extending above the freeboard deck or superstructure decks.

2.3 Cargo hatch covers and coamings, weather decks and ship side plating above the waterline

2.3.1 The Owner or his representative is to declare to the attending Surveyor that no changes have been made to the hatch covers, hatch coamings and their securing and sealing devices without the prior approval of ^{Tasneef}

The survey of hatch covers and coamings is to include:

- a) when fitted with portable covers, or wooden or steel pontoons, checking of the satisfactory condition of:
 - wooden covers and portable beams, carriers or sockets for the portable beams, and their securing devices
 - steel pontoons
 - tarpaulins
 - cleats, battens and wedges
 - hatch securing bars and their securing devices

- loading pads/bars and the side plate edge
 - guide plates and chocks
 - compression bars, drainage channels and drain pipes (if any)
- b) when fitted with mechanically operated steel covers, checking of the satisfactory condition of:
- hatch covers
 - tightness devices of longitudinal, transverse and intermediate cross junctions (gaskets, gasket lips, compression bars, drainage channels and, if any, drain pipes)
 - clamping devices, retaining bars, cleating
 - chain or rope pulleys
 - guides
 - guide rails and track wheels
 - stoppers etc.
 - wires, chains, gypsies, tensioning devices
 - hydraulic system essential to closing and securing
 - safety locks and retaining devices
- c) checking of the satisfactory condition of hatch coaming plating and its stiffeners
- d) random checking of the satisfactory operation of mechanically operated hatch covers, including:
- stowage and securing in open condition;
 - proper fit and efficiency of sealing in closed condition;
 - operational testing of hydraulic and power components, wires, chains and link drives.

2.3.2 Examination of the weld connection between air pipes and deck plating.

2.3.3 External examination of all air pipe heads installed on exposed decks.

2.3.4 Examination of flame screens on vents to all bunker tanks.

2.3.5 Examination of ventilators, including closing devices, if any.

2.4 Suspect areas

2.4.1

Suspect areas identified at previous surveys are to be examined. Thickness measurements are to be taken of the areas of substantial corrosion and the extent of thickness measurements is to be increased to determine the extension of areas of substantial corrosion. Sec 3, Tab 2 may be used as guidance for these additional thickness measurements. These extended thickness measurements are to be carried out before the ordinary survey is credited as completed.

Note 1: These requirements are not applicable to tankers surveyed in accordance with the requirements given in Ch 4, Sec 3, Ch 4, Sec 4 and Ch 4, Sec 5.

2.5 Ballast tanks

2.5.1

Examination of ballast tanks is to be carried out when required as a consequence of the results of the class renewal survey and intermediate survey. When considered necessary by the Surveyor, or where extensive corrosion exists, thickness measurement is to be carried out. If the results of these thickness measurements indicate that there is substantial corrosion, then the extent of thickness measurements is to be increased to determine the extension of areas of substantial corrosion. Sec 3, Tab 2 may be used as guidance for these additional measurements. These extended thickness measurements are to be carried out before the ordinary survey is credited as completed.

3 Machinery and systems

3.1 General machinery installations

3.1.1 (1/1/2022)

The survey of general machinery installations is to cover the following items:

- general examination of machinery and boiler spaces with particular attention to the fire and explosion hazards; confirmation that emergency escape routes are practicable and not blocked
- general examination of the machinery, steam, hydraulic, pneumatic and other systems and their associated fittings, for confirmation of their proper maintenance
- testing of the means of communication and order transmission between the navigating bridge and the machinery control positions and other control stations
- confirmation that the rudder angle indicator on the bridge is in working order
- examination, as far as practicable, of the bilge pumping systems and bilge wells, including operation of the pumps, remote reach rods and level alarms, where fitted
- visual examination of the condition of any expansion joints in water systems
- external examination of pressure vessels other than boilers and their appurtenances, including safety devices, foundations, controls, relieving gear, high pressure piping, insulation and gauges.

3.1.2

When the ship is equipped with a refrigerating plant (whether or not covered by an additional class notation), the ordinary survey is to include the external examination of:

- pressure vessels of the installation to the same extent as indicated in [3.1.1]
- refrigerant piping, as far as practicable

- for refrigerating machinery spaces using ammonia as refrigerant:
 - ventilation system including functional test
 - water-spraying fire-extinguishing system; see [3.4.2] item d)
 - bilge system including functional test
 - electrical equipment, confirming its proper maintenance
 - gas detection system
 - breathing apparatus and protective clothing.

3.1.3

When the ship is equipped with thruster installations, the ordinary survey is to include:

- an external examination of the machinery installation
- an operating test of the complete installation.

3.2 Boilers

3.2.1

For main and auxiliary boilers, the ordinary survey consists of an external examination of boilers and their appurtenances, including safety devices, foundations, controls, relieving, high pressure and steam escape piping, insulation and gauges.

3.2.2 For thermal oil heaters, a functional test while in operation is to be carried out, during which the following items are checked:

- the heater for detection of leakages
- the condition of the insulation
- the operation of indication, control and safety devices
- the condition of remote controls for shut-off and discharge valves.

A satisfactory analysis of the quality of oil is to be made available to the Surveyor.

3.2.3 For exhaust gas thermal oil heaters, in addition to the requirements of [3.2.2], a visual examination and tightness testing to the working pressure of the heater tubes are to be carried out.

3.3 Electrical machinery and equipment

3.3.1 The survey of electrical machinery and equipment is to cover the following items:

- general examination, visually and in operation, as feasible, of the electrical installations for power and lighting, in particular main and emergency generators, electric motors, batteries, switchboards, switchgears, cables and

circuit protective devices, indicators of electrical insulation and automatic starting, where provided, of emergency sources of power

- checking, as far as practicable, the operation of emergency sources of power and, where they are automatic, also including the automatic mode.

3.3.2 The survey is also to cover the bridge control of propulsion machinery, and related arrangements (alarms and safety devices), when fitted.

3.4 Fire protection, detection and extinction

3.4.1 The survey of fire prevention includes:

- the examination, as far as practicable, and testing, as feasible and at random, of the fire and/or smoke detection systems
- the examination of arrangements for gaseous fuel for domestic purposes, such as movable cooking appliances, the so-called "flambé carte".

3.4.2 The survey requirements for fixed CO₂ fire-extinguishing systems fitted on board are the following:

- external examination of receivers of CO₂ fixed fire-extinguishing systems and their accessories, including the removal of insulation for insulated low pressure CO₂ containers
- examination of fixed fire-fighting system controls, piping, instructions and marking; checking that the maintenance and servicing, including the filling ratio of gas bottles, have been carried out not more than two years beforehand and that the dates of the last tests of the system are in order
- test of the alarm triggered before the CO₂ is released.

3.4.3

The survey requirements for the fixed fire-fighting system are the following:

- External inspection of the entire installation;
- Tightness check on pipes;
- Functional check of control and triggering systems;
- Check of tank pressure and content;
- Check of the fire alarm system;
- Check of the warning system;
- Check of tightness and facilities for locking the room to be protected.

3.4.4

Each portable extinguisher is to be inspected and, if necessary, is to be replaced or refilled.

SECTION 2

INTERMEDIATE SURVEY

1 General

1.1

1.1.1

The requirements of this Section apply to intermediate surveys of all ships. The specific requirements for intermediate surveys related to service notations and additional class notations are given in Chapter 4 and Chapter 5, respectively.

1.1.2 The intermediate survey is to include examination and checks on a sufficiently extensive part of the structure to show that the structures of the ship are in satisfactory condition so that the ship is expected to operate until the end of the current period of class, provided that the ship is properly maintained and other surveys for maintenance of class are duly carried out during this period.

1.1.3 A survey-planning meeting is to be held prior to the commencement of the survey.

2 Hull

2.1

2.1.1

In addition to the requirements of ordinary surveys the class intermediate survey is to include the following.

2.1.2

The scope of the intermediate survey includes the following requirements:

a) for ships between 10 and 20 years of age, a general internal examination of representative spaces used for

water ballast. If there is no hard protective coating, or soft coating, or poor coating condition, the examination is to be extended to other ballast spaces of the same type;

b) for ships over 20 years of age, a general internal examination of all spaces used for water ballast.

If considered necessary by the Surveyor, thickness measurements may be required (see Tab 1).

2.1.3 If such examinations reveal no visible structural defects, the examination may be limited to verification that the corrosion prevention system remains effective.

2.1.4

For spaces used for water ballast, excluding double bottom tanks, if there is no hard protective coating, or soft coating, or poor coating condition and it is not renewed, the spaces in question are to be internally examined at ordinary surveys.

2.1.5

When such conditions are found in water ballast double bottom tanks, the spaces in question may be internally examined at ordinary surveys.

2.1.6

In the case of dry cargo ships over 20 years of age, other than bulk cargo subject to the requirements of Ch 4, Sec 2 or Ch 4, Sec 9 as applicable or general cargo ships subject to the requirements of Ch 4, Sec 8, an internal examination of selected cargo holds is to be carried out.

Table 1 : Intermediate survey of hull (all ships)

ITEM	Age of the ship (in years at the time of intermediate survey)	
	10 < age ≤ 20	Age > 20
WATER BALLAST SPACES	General internal examination of representative spaces Thickness measurements, if considered necessary by the Surveyor See (1) (2)	All spaces internally examined Thickness measurements, if considered necessary by the Surveyor See (1) (2)
CARGO HOLDS (general cargo ships)	Selected cargo holds internally examined	Selected cargo holds internally examined
CARGO TANKS	Selected cargo tanks internally examined	Selected cargo tanks internally examined
<p>(1) If there is no hard protective coating, or soft coating, or poor coating condition, the examination is to be extended to other ballast spaces of the same type.</p> <p>(2) For spaces used for water ballast, excluding double bottom tanks, if there is no hard protective coating, or soft coating, or poor coating condition and it is not renewed, the spaces in question are to be internally examined at ordinary surveys. When such conditions are found in water ballast double bottom tanks, the spaces in question may be internally examined at ordinary surveys.</p> <p>Note 1: Due attention is also to be given to fuel oil piping passing through ballast tanks, which is to be pressure tested should doubts arise.</p>		

SECTION 3

CLASS RENEWAL SURVEY

1 General

1.1

1.1.1

The requirements of this Section apply to class renewal surveys of all ships. In addition to the provisions of Ordinary Survey given in Sec.1, such survey are to include the requirements given in [1.1.2] to [1.1.5].

1.1.2 The class renewal survey is to include examination, tests and checks to show that the hull structures, main and auxiliary machinery, systems, equipment and related piping, as required in [2.2.8], are in satisfactory condition or restored to such condition as to allow the ship to operate for the new period of class to be assigned, provided that the ship is properly maintained and operated and other surveys for maintenance of class are duly carried out during this period.

The examinations of the hull are to be supplemented by thickness measurements and testing as required in [2.5.1] and [2.2.8], to ensure that the structural integrity remains effective. The aim of the examination is to discover substantial corrosion, significant deformation, fractures, damage or other structural deterioration.

1.1.3 The Owner is to provide the necessary facilities to enable this class renewal survey. The conditions for survey as detailed in Ch 2, Sec 2, [2.5] to Ch 2, Sec 2, [2.7] are to be met.

1.1.4 When the ship is under the continuous survey system for machinery and/or hull, the scope of the class renewal survey as described in this Section is carried out on a continuous basis over the period of class according to the procedure laid down in Ch 2, Sec 2, [4.3].

When the machinery installation is surveyed under the Planned Maintenance System, a specific program of survey replaces the scope of the class renewal survey of machinery and systems as laid down in [3] below, according to the procedure laid down in Ch 2, Sec 2, [4.4].

1.1.5 A survey-planning meeting is to be held prior to the commencement of the survey.

2 Hull and hull equipment

2.1 Bottom survey

2.1.1 The class renewal survey is to include a bottom survey as laid down in Sec 4, [2].

2.2 Decks, hatch covers and equipment

2.2.1 Decks are to be examined, particular attention being given to the areas where stress concentration or increased corrosion is likely to develop, such as hatch corners and other discontinuities of structure.

Deck erections such as hatch coamings, deckhouses and superstructures are to be examined.

The sheathing of wood-sheathed steel decks may be removed, at the Surveyor's discretion, in the case of doubt as to the condition of plating underneath.

Due attention is to be given to the examination in way of end and side openings and related shell and inner doors.

2.2.2 The survey of hatch covers and coamings is to include:

- a thorough inspection of the items listed in Sec 1, [2.3], including close-up survey of hatch cover plating and hatch coaming plating
- checking of the satisfactory operation of all mechanically operated hatch covers including stowage and securing in open condition, proper fit, locking and efficiency of sealing in closed position, operational testing of hydraulic and power components, wires, chains and link drives
- checking of the effectiveness of sealing arrangements of all hatch covers by means of hose testing or equivalent
- thickness measurements of coaming and attached stiffeners, hatch cover plating and stiffeners (see Tab 2).

2.2.3 The survey of hull equipment is to cover the following points:

- windlass and chain stoppers, with disassembly as deemed necessary to verify the condition of the equipment and control and safety devices, hawse pipes
- steering arrangements, including steering gear, control and indication devices, operational tests and disassembly as deemed necessary; in the case of chain and rod gears, chains, rods, sheaves, pins and rollers are to be examined for wear
- connection of masts and standing rigging to the hull structure as well as condition of structure underneath.

2.2.4 Piping systems outside tanks and compartments are to be visually examined and pressure tested as necessary, as per the requirements laid down for the class renewal survey of machinery and systems; see [3.5].

2.2.5 For all ships except for passenger ships, automatic air pipe heads are to be completely examined (both internally and externally) as indicated in Tab 4.

For designs where the inner parts cannot be properly inspected from outside, this is to include removal of the head from the air pipe. Particular attention is to be paid to the condition of the zinc coating in heads constructed from galvanised steel.

2.2.6 The anchors and chain cables are to be ranged and examined, and the required complement and condition verified. The chain locker, holdfasts, hawse pipes and chain stoppers are to be examined and pumping arrangements of the chain locker tested. At class renewal surveys of ships more than 8 years of age, chain cables are to be gauged and renewed in cases where their mean diameter is worn below the limits allowed.

2.2.7 All bilge and ballast piping systems are to be examined and operationally tested to working pressure to the attending Surveyor's satisfaction to ensure that tightness and condition remain satisfactory.

2.3 Holds and other dry compartments

2.3.1 All spaces including holds and their twin decks where fitted, double bottom, deep, ballast, peak and cargo tanks, pump rooms, pipe tunnels, duct keels, machinery spaces, dry spaces, cofferdams and voids are to be internally examined, including the plating and framing, bilges and drain wells, sounding, venting, pumping and drainage arrangements. Internal examination of fuel oil, lube oil and fresh water tanks is to be carried out in accordance with Tab 5.

2.3.2 (1/1/2022)

Machinery and boiler spaces, pump rooms and other spaces containing machinery are to be internally examined, ascertaining the condition of the 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, and bulkheads in way of tank tops and bilge wells. Particular attention is also to be given to the water suction, water cooling pipes and overboard discharge valves and their connections to the shell plating. Where wastage is evident or suspected, thickness measurements are to be carried out, and renewals or repairs effected when wastage exceeds allowable limits.

Piping systems inside these spaces are to be dealt with according to [3.5].

2.3.3 Chain lockers are to be internally examined, while the anchor chains are ranged as required for the bottom survey in dry condition (see [2.2.6]). The pumping arrangement of the chain lockers is to be tested.

2.4 Tanks

2.4.1 The type and number of tanks to be internally examined at each class renewal survey are detailed in Tab 1 for cargo and water ballast tanks and Tab 5 for fuel oil, lubricating oil and fresh water tanks, according to the age of the ship.

This internal examination is to ascertain the condition of the structure, bilges and drain wells, sounding, venting, pumping and drainage arrangements, including piping systems and their fittings. Due attention is to be given to plating or double plates below the lower end of sounding and suction pipes.

Where wastage is evident or suspected, thickness measurements are to be carried out, and renewals or repairs effected when wastage exceeds allowable limits.

Where the inner surface of the tanks is covered with cement or other compositions, the removal of coverings may be waived provided they are examined, found sound and adhering satisfactorily to the steel structures.

Note 1: For examination of independent (non-structural) tanks, refer to [3.5.9].

Note 2: Note 2: Due attention is also to be given to fuel oil piping passing through ballast tanks, which is to be pressure tested when the ship is more than 16 years old.

2.4.2

Where provided, the condition of corrosion prevention systems of ballast tanks is to be examined. For tanks used for water ballast, excluding double bottom tanks, where a hard protective coating is found in poor condition and it is not renewed, where soft coating has been applied, or where a hard protective coating has not been applied since the time of construction, the tanks in question are to be examined at ordinary surveys. Thickness measurements are to be carried out as deemed necessary by the Surveyor.

When such breakdown of hard protective coating is found in water ballast double bottom tanks and it is not renewed, where a soft coating has been applied, or where a hard protective coating has not been applied since the time of construction, the tanks in question may be examined at ordinary surveys. When considered necessary by the Surveyor, or where extensive corrosion exists, thickness measurements are to be carried out.

2.4.3 Boundaries of double bottom, deep, ballast, peak and other tanks, including holds adapted for the carriage of water ballast, are to be tested with a head of liquid to the top of air pipes or to near the top of hatches for ballast/cargo holds.

2.4.4 Boundaries of fuel oil, lube oil and fresh water tanks are to be tested with a head of liquid to the highest point that liquid will rise to under service conditions. Tank testing of fuel oil, lube oil and fresh water tanks may be specially considered based on a satisfactory external examination of the tank boundaries and confirmation from the Master that pressure testing has been carried out according to the requirements with satisfactory results. The Surveyor may extend the testing as deemed necessary.

2.4.5 Other testing procedures, in particular those specified in Pt B, Ch 12, Sec 3, [2] for the initial survey during construction, may be accepted.

For integral tanks which are intended to contain liquid cargoes such as edible oil, the Surveyor may waive the requirement specified in [2.4.4] subject to a satisfactory internal examination.

2.5 Thickness measurements

2.5.1 Thickness measurements are to be carried out according to the procedure detailed in Ch 2, Sec 2, [2.3].

Thickness measurements to the extent indicated in Table 2 are to be carried out from the first renewal survey for ships which are 20 years of age and above.

The Surveyor may extend the thickness measurements as deemed necessary. When thickness measurements indicate substantial corrosion, the extent of thickness measurements is to be increased to determine areas of substantial corro-

sion. Tab 3 may be used as guidance for these additional thickness measurements. These extended thickness measurements are to be carried out before the survey is credited as completed.

2.5.2 When the structure is protected with hard coating and the coating is found to be in good condition, as defined in Ch 2, Sec 2, [2.2.11], the Surveyor may specially consider the extent of thickness measurements in the corresponding areas. Other effective protective arrangements may also be considered.

Table 1 : Requirements for internal examination of cargo and ballast structural tanks at class renewal survey

Type and use of structural tanks	Ship of any age
Peaks (all uses)	all
Water ballast tanks (all types)	all
Cargo tanks	all

Note 1: Independent non-structural tanks are to be surveyed according to [3.5.9].
Note 2: The extent of the survey of tanks dedicated to liquids other than those indicated in this table will be considered by the Society on a case-by-case basis according to the nature of the liquids.

Table 2 : Requirements for thickness measurements at class renewal survey of ship having an age > 20 years (1/1/2022)

Suspected areas
A minimum of three transverse sections in way of cargo spaces within 0,5 L amidships
Inside in forepeak and after peak tanks
All exposed main deck plating full length, including plating in way of wood deck planking or sheathing
Representative exposed superstructure deck plating (poop, bridge, and forecastle deck)
All wind and water strakes, port and starboard, full length
Deck and side shell plating in way of galley and refrigerated store spaces
Structure in way of integral sanitary tanks
Shell and tank top plating immediately adjacent to tank top margins
Shell plating below portlights and windows
All keel plates full length. Also, additional bottom plates in way of cofferdams, machinery space, aft end of tanks and cement/asphalt
Plating of water suction chests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor

Note 1: Thickness measurement locations are to be selected to provide the best representative sampling of areas likely to be most exposed to corrosion, considering cargo and ballast history and arrangement and condition of protective coatings. Thickness measurements of interiors may be specially considered by the Surveyor if the hard protective coating is in GOOD condition.

Table 3 : Guidance for additional thickness measurements in way of substantial corrosion areas

Structural member	Extent of measurements	Pattern of measurements
Plating	Suspect area and adjacent plates	5 point pattern over 1 square metre
Stiffeners	Suspect area	3 measurements each in line across web and flange

Table 4 : Survey requirements for automatic air pipe heads at class renewal surveys

Age of ship (in years at time of class renewal survey due date)		
age ≤ 10	10 < age ≤ 20	age > 20
<ul style="list-style-type: none"> - Two air pipe heads, one port and one starboard, located on the exposed decks in the forward 0,25 L, preferably air pipes serving ballast tanks. - Two air pipe heads, one port and one starboard, on the exposed decks, serving spaces aft of 0,25 L, preferably air pipes serving ballast tanks. 	<ul style="list-style-type: none"> - All air pipe heads located on the exposed decks in the forward 0,25 L. - At least 20% of air pipe heads on the exposed decks serving spaces aft of 0,25 L, preferably air pipes serving ballast tanks. 	<ul style="list-style-type: none"> - All air pipe heads located on the exposed decks.
<p>Note 1: The selection of air pipe heads to be inspected is left to the attending Surveyor. According to the results of this inspection, the Surveyor may require the inspection of other heads located on the exposed decks. Exemption may be considered for air pipe heads where there is substantiated evidence of replacement within the previous five years.</p>		

Table 5 : Requirements for internal examination of fuel oil, lubricating oil and fresh water tanks at class renewal survey

Type and use of structural tanks	Age of ship (in years at time of class renewal survey due date)			
	age ≤ 10	10 < age ≤ 20	20 < age ≤ 30	age > 30
Fuel oil - diesel oil tanks (engine room)	none	none	one	one
Fuel oil - diesel oil tanks (cargo length area)	none	one	two (2)	half, minimum two (1) (2)
Lubricating oil tanks	none	none	none	one
Fresh water tanks	none	one	all	all
<p>(1) At least half of the total number of tanks are to be internally inspected every 8 years. (Tanks that are not inspected internally may be externally inspected ensuring proper accessibility)</p> <p>(2) A "deep tank" is to be included.</p> <ul style="list-style-type: none"> • Non-structural tanks are to be inspected as indicated in [3.5.9] • The scope of the inspection of tanks containing liquids other than those in this table will be defined by ^{Tasneef} case-by-case <p>If a selection of tanks is accepted for examination, then different tanks are to be examined at each class renewal survey, on a rotation basis.</p>				

3 Machinery and systems

3.1 General

3.1.1 The survey items listed below are to be covered to the satisfaction of the Surveyor. However, other survey alternatives deemed equivalent by the Surveyor in relation to the characteristics and general condition of the ship concerned may also be accepted.

Note 1: Attention is drawn to the requirement in Ch 2, Sec 2, [2.5.1] regarding safe execution of surveys, in particular as regards health hazards related to asbestos.

3.1.2 Machinery verification runs (1/1/2022)

At the time of dry-docking, a dock trial is to be carried out to attending Surveyors' satisfaction to confirm satisfactory

operation of main and auxiliary machinery. If significant repairs are carried out to main or auxiliary machinery or steering gear, consideration should be given to a navigation trial to attending Surveyors' satisfaction.

3.2 Main and auxiliary engines and turbines

3.2.1 General

Depending on the type of machinery, the following parts are to be opened up as necessary for inspection. Parts and components are to be pressure tested as appropriate or as deemed necessary by the Surveyor. A working test is also to be carried out, including testing of alarms and safety devices.

3.2.2 Internal combustion engines

- a) Columns and entablature
- b) Cylinders with their liners, cylinder covers (together with valves and valve gear), pistons with their rods, crossheads, slippers and guides (or gudgeon pins), connecting rods (with their top and bottom end bearings), control gear, driven scavenge pumps, driven air compressors, driven fuel pumps, supercharging blowers, fuel injection pumps, turning gear, etc.
- c) Crankshafts (together with their main bearings)
- d) Reverse gear, reduction gear and clutches, if fitted.

3.2.3 Steam turbines

- a) Condensers and their cooling water and condensate extraction pumps.
- b) Casings and rotors (including their blading), impulse wheels (including guide blading and diaphragms), nozzles and nozzle boxes, journals and bearings, dummy pistons, labyrinths, external glands, etc.
- c) Shafts, including their flexible couplings.

Where the propulsion steam turbines are of a well-known type, and fitted with rotor position indicators and vibration indicators of an approved type, as well as measuring equipment of steam pressure at proper locations along the steam flow, and the arrangements for change-over in the event of emergency operation of the plant are readily operable, the first class renewal survey may be limited to the examination of rotor bearings, thrust bearings and flexible couplings, provided the Surveyor is satisfied from operation service records and power trials subsequent to the survey that the turbine plant is in good working condition.

3.2.4 Gas turbines

- a) Casings, rotors and disks, impellers and blading of all turbines and compressors, combustion chambers, burners, heat exchangers, gas piping, compressed air piping with fittings, starting and reverse arrangements
- b) Shafts and their flexible couplings.

3.2.5 Electric propulsion

Where the propulsion machinery consists of an electrical system, the propulsion motors, generators, cables and all ancillary electrical gear, exciters and ventilating plant (including coolers) associated therewith are to be examined and the insulation resistance to earth tested. Due attention is to be given to windings, commutations and sliprings. The operation of protective gear and alarm devices is to be checked, as far as practicable. Interlocks intended to prevent unsafe operations or unauthorised access are to be checked to verify that they are functioning correctly.

3.2.6 Thruster installations

When the ship is equipped with thruster installations, the class renewal survey is also to include:

- a thorough examination of the machinery and electrical installation, as applicable;
- an external examination of the propulsive part of the installation to be carried out at the dry dock survey due as part of the class renewal survey. During this examina-

tion other checks such as clearance readings, tightness of hub and blade sealing for controllable pitch propellers are to be verified. Locking arrangements for bolts, if fitted, are to be checked. Results of lubricating oil analysis to detect possible deterioration of internal gears and bearings or the presence of water are to be confirmed as acceptable. The Manufacturer's requirements may be taken into account. Dismantling of the assembly for the examination of internal parts may be required if the foregoing checks are not satisfactory;

- a running test of the system under operating conditions.

3.3 Reduction gears, main thrust and intermediate shafts

3.3.1 Reduction gears complete with all wheels, pinions, shafts, couplings, bearings and gear teeth, including incorporated clutch arrangements, are to be opened up, as deemed necessary by the Surveyor, for visual inspection. For complicated assemblies, gears and roller bearings may be inspected without dismantling.

3.3.2 All shafts, thrust blocks and bearings are to be examined.

3.4 Pumps and other machinery items

3.4.1 General

The items listed in [3.4.2] are to be opened up, as deemed necessary by the Surveyor, for visual inspection. Their parts and components are to be pressure tested as appropriate and considered necessary by the Surveyor. A working test is also to be carried out, including testing of alarms and safety devices if deemed necessary by the Surveyor.

3.4.2 Items to be surveyed (1/1/2022)

- a) Air compressors with their intercoolers, filters and/or oil separators and safety devices
- b) Heat exchangers, ventilation fans for boilers and other equipment used for essential services
- c) Piston pumps and centrifugal pumps for water, bilge and water ballast
- d) Screw pumps, gear pumps and centrifugal pumps other than those listed in c) above (opening up is not required).

3.5 Systems in machinery spaces

3.5.1 Valves, cocks and strainers of the bilge and ballast systems are to be opened up, thoroughly or partly as deemed necessary by the Surveyor, for visual inspection, and, together with the piping and safety devices, examined and tested under working conditions.

3.5.2 The fuel oil, lubricating oil, hydraulic oil, thermal oil, and feed and cooling water systems, together with pressure filters, heaters and coolers used for essential services, are to be opened up and examined or tested, as considered necessary by the Surveyor. Safety devices for the foregoing items are to be examined.

3.5.3 The compressed air system together with its valves, fittings and safety devices is to be examined, as considered necessary by the Surveyor.

3.5.4 Compressed air receivers and other pressure vessels for essential services are to be cleaned internally and examined internally and externally. Where the above receivers or vessels cannot be examined internally, they are to be hydrostatically tested to 1,5 times the working pressure. Their fittings, valves and safety devices are to be opened up, as deemed necessary by the Surveyor, for visual inspection and pressure tested as appropriate.

3.5.5 Steel pipes for superheated steam having a temperature of the steam at the superheater outlet exceeding 450°C are to be examined and tested in accordance with [3.5.7] and [3.5.8] at each class renewal survey.

3.5.6 Steel pipes for saturated steam or superheated steam having a temperature of the steam at the superheater outlet not exceeding 450°C are to be examined and tested in accordance with [3.5.7] and [3.5.8] at each class renewal survey for ships over 8 years of age. When the ship is 8 years of age or less, the inspection may be limited to a check of the satisfactory general condition of pipes.

3.5.7 The examination and hydrostatic test of steel pipes for main steam machinery, and steel pipes for auxiliary steam machinery having internal diameter 75 mm and over, are to be carried out on a number of pipes selected by the Surveyor after the lagging in way is removed.

3.5.8 Representative pipe lengths connected with bolted flanges are to be internally and externally examined, and hydrostatically tested to 1,1 times the working pressure at ambient temperature. Bolts and butt-welded joints between flanges and pipes are to be submitted to a non-destructive test for crack detection.

3.5.9 Non-structural tanks located in machinery spaces are to be externally examined; the relevant fittings, with particular regard to the remote control shut-off valves under hydrostatic head, are to be externally examined to check the efficiency of manoeuvres and the absence of cracks or leakage.

3.5.10 When the ship is equipped with a refrigerating plant (whether or not covered by an additional class notation), the class renewal survey is to include:

- a) examination and test at the design pressure of the parts of the plant under pressure
- b) for refrigerating machinery spaces using ammonia as refrigerant:
 - examination and test of the water-spraying fire-extinguishing system to the same extent as indicated in [3.8.2] item d)
 - examination of valves and pumps of the bilge system to the same extent as indicated in [3.4]
 - examination and test of the electrical equipment to the same extent as indicated in [3.6.10]
 - test of the gas detection system.

3.6 Electrical equipment and installations

3.6.1 An electrical insulation resistance test is to be performed on the electrical equipment and cables. If needed, for the purpose of this test, the installation may be subdivided or equipment which may be damaged disconnected.

3.6.2 The prime movers of generators are to be surveyed in accordance with [3.2] and their governors tested. All generators are to be presented for inspection, clean and with covers opened and examined under working conditions.

3.6.3 Main and emergency switchboards, section boards and distribution boards are to be cleaned and doors or covers opened for examination of their fittings. The condition of overcurrent protective devices and fuses is to be checked. Circuit-breakers of generators are to be tested, as far as practicable, to verify that protective devices including preference tripping relays, if fitted, operate satisfactorily. The tightening of busbar connections is to be checked.

3.6.4 Electrical cables and cable runs are to be examined at random, in particular in places where deterioration is likely to occur; terminal boxes of essential services are also to be subjected to a random check.

3.6.5 The motors and starters concerning essential services together with associated control and switchgear are to be examined and, if considered necessary by the Surveyor, checked, as far as practicable, under working conditions.

3.6.6 Navigation light indicators are to be tested under working conditions, and correct operation on the failure of supply or failure of navigation lights verified.

3.6.7 The emergency sources of electrical power, their automatic arrangements and associated circuits are to be tested.

3.6.8 Emergency lighting, transitional emergency lighting, supplementary emergency lighting, general emergency alarm and public address systems are to be tested as far as practicable.

3.6.9 The visible condition of electrical equipment and installations is also to be checked as regards precautions against shock, fire and other hazards of electrical origin.

3.6.10 A general examination of the electrical equipment in areas where there may be flammable gas or vapour and/or combustible dust is to be carried out to ensure that the integrity of the electrical equipment of a safe type has not been impaired owing to corrosion, missing bolts, etc., and that there is not an excessive build-up of dust on or in dust-protected electrical equipment. Cable runs are to be examined for sheath and armouring defects, where practicable, and to ensure that the means of supporting the cables are in satisfactory condition. The proper condition of bonding straps for the control of static electricity is to be checked. Alarms and interlocks associated with pressurised equipment or spaces are to be tested for correct operation.

Note 1: Owners are reminded that maintenance, repairs or renewal of certified electrical equipment of a safe type remains their responsibility or that of their representatives.

3.7 Controls

3.7.1 Where remote and/or automatic controls, not covered by an additional class notation related to automated installation, are fitted for essential machinery, they are to be tested to demonstrate that they are in satisfactory condition.

3.8 Fire protection, detection and extinction

3.8.1 The class renewal survey of fire prevention arrangements consists of the test of the fire and/or smoke detection and alarm systems.

3.8.2 The survey requirements for fixed CO₂ fire-extinguishing systems fitted on board are as follows.

Receivers of CO₂ fixed fire-extinguishing systems are to be externally examined together with all stationary fittings and devices. In addition, the following applies:

- a) the total loss of CO₂ is not to exceed 10% of the installed quantity
- b) after being repaired or discharged, containers are to be subjected to a hydrostatic test
- c) hydrostatic testing of high pressure CO₂ containers is to be carried out at alternate class renewal surveys (starting from the 2nd, i.e. : at the 2nd, 4th, etc.); the number of

the tested containers is to be not less than 10% of the total number

- d) low pressure CO₂ containers are to be internally inspected if the content has been released and the container is older than five years; depending upon the result of the internal examination, the Surveyor may require the container to be hydrostatically tested.

It is to be checked that the distribution pipework is proved clear.

3.8.3

The survey requirements for the fixed fire-fighting system are the following:

- External inspection of the entire installation;
- Tightness check on pipes;
- Functional check of control and triggering systems;
- Check of tank pressure and content;
- Check of the fire alarm system;
- Check of the warning system;
- Check of tightness and facilities for locking the room to be protected.

3.8.4

Each portable extinguisher is to be inspected and, if necessary, is to be replaced or refilled.

SECTION 4

BOTTOM SURVEY

1 General

1.1

1.1.1 The bottom survey may be carried out in dry condition, such as in dry dock or on a slipway, or through an in-water survey.

The conditions for acceptance of a bottom in-water survey in lieu of a bottom survey in dry condition are laid down in Ch 2, Sec 2, [5.4.4] and [3].

2 Bottom survey in dry condition

2.1 General requirements

2.1.1 (1/1/2022)

When a ship is in dry condition, it is to be placed on blocks of sufficient height and with the necessary staging to permit the examination of elements such as shell plating including bottom and bow plating, stern frame and rudder, water suction chests and valves, propeller, etc.

2.1.2 The outer shell plating is to be visually examined for excessive corrosion, or deterioration due to chafing or contact with the ground or for any undue deformation or buckling. Due attention is to be given to the plating of end structures (stem and sternframe), and to the connection between the bilge strakes and the bilge keels. Significant plate unevenness or other deterioration which does not necessitate immediate repairs is to be recorded.

2.1.3 (1/1/2022)

Water suction chests and their gratings, connections to water and overboard discharge valves and cocks and their fastenings to the hull or water suction chests are to be examined. Valves and cocks need not be opened up more than once in a class renewal survey period unless considered necessary by the Surveyor.

2.1.4 Visible parts of the propeller(s), stern bush(es), propeller shaft boss, brackets and tightness system(s) are to be examined. The clearances of the propeller shaft(s) (or wear down gauge) are to be checked and recorded. For controllable pitch propellers, the Surveyor is to be satisfied with the fastenings and tightness of hub and blade sealing.

Visible parts of other propulsion systems and propellers for steering purposes are also to be examined.

Dismantling is to be carried out, if considered necessary, notably where leakages are detected.

2.1.5 Visible parts of the rudder(s), rudder pintles, rudder stock and couplings as well as the sternframe are to be examined. If considered necessary by the Surveyor, the rudder(s) is (are) to be lifted or the inspection plates removed for the examination of pintles.

The clearances in the rudder bearings and the rudder lowering are to be checked and recorded.

Where applicable, a pressure test of the rudder may be required as deemed necessary by the Surveyor.

3 In-water survey

3.1 General

3.1.1 An in-water survey may normally be carried out if the ship has been granted the additional class notation **INWATERSURVEY** as defined in Ch 1, Sec 2, [6.6]. Upon application by the Owner and in special circumstances, the Society may also authorise such bottom in-water survey for ships not assigned the additional class notation **INWATERSURVEY**.

3.1.2 The bottom in-water survey is to provide the information normally obtained from a bottom survey carried out in dry condition. Special consideration is to be given to ascertaining rudder bearing clearances and stern bush clearances of oil stern bearings based on a review of the operating history, on board testing and stern oil sample reports. These considerations are to be included in the proposals for in-water survey, which are to be submitted in advance of the survey so that satisfactory arrangements can be agreed on with ^{Tasneef}

3.1.3 (1/1/2022)

Water suction chests and their gratings, sea connections and overboard discharge valves and cocks and their fastenings to the hull or water suction chests are to be examined. Valves and cocks need not be opened up more than once in two class renewal survey periods unless considered necessary by the Surveyor.

3.1.4 The in-water survey is to be carried out with the ship at a light draught in sheltered water and preferably with weak tidal streams and currents. The in-water visibility is to be good and the hull below the waterline is to be sufficiently clean to permit meaningful examination.

^{Tasneef} is to be satisfied with the methods of localisation of the divers on the plating, which should make use where necessary of permanent markings on the plating at selected points.

The equipment and the procedure for observing and reporting the in-water survey are to be discussed with the parties involved prior to the survey, and suitable time is to be allowed to permit the diving company to test all equipment beforehand.

3.1.5 The in-water survey is to be carried out by one or more professional divers in the presence of a Surveyor. The diver(s) is (are) to be employed by a firm agreed by ^{Tasneef}

3.1.6 The Surveyor is to be satisfied with the method of pictorial representation, and good two-way communication between the Surveyor and the divers is to be provided.

3.1.7 If the in-water survey reveals damage or deterioration that requires early attention, the Surveyor may require the ship to be dry-docked in order for a detailed survey to be undertaken and the necessary repairs carried out.

SECTION 5

TAILSHAFT SURVEY

1 Survey of tailshafts

1.1 General

1.1.1 The different types of surveys to which tailshafts may be subjected and the intervals at which they are to be carried out are given in Ch 2, Sec 2, [5.5]. These surveys are:

- complete survey
- modified survey.

The requirements to be complied with at each survey are listed below.

1.2 Complete survey

1.2.1 The complete survey of tailshafts consists of the following, as applicable:

- a) removal of propeller and key, where fitted, and their examination
- b) complete withdrawal of shaft to permit the examination of sterntube bearings (outboard or inboard depending on the type of shaft)
- c) examination by an appropriate crack detection method of the after end of the cylindrical part of the shaft and forward one third of shaft cone, or the fillet of the flange in the case of a flanged coupling
- d) examination of shaft bearing surfaces, liners, joints, threaded end and nut
- e) examination of oil sealing glands with the necessary dismantling
- f) measurements of clearances and/or wear (prior to and after the survey) and their recording.

1.2.2 Where the notation **MON-SHAFT** has been assigned as specified in Ch 1, Sec 2, [6.5], the tailshaft need not be withdrawn at the complete survey and items b) and d) of [1.2.1] need not be covered provided that all condition monitoring data (bearing temperature, consumption and analysis of lubricating oil) is found to be within permissible limits and the remaining requirements for the complete survey are complied with.

Where the Surveyor considers that the data presented is not entirely to his satisfaction, the shaft is to be withdrawn.

1.3 Modified survey

1.3.1 A modified survey may be carried out for those tailshafts which fulfil the conditions described in Ch 2, Sec 2, [5.5.3], where the periodicity of this type of survey is also shown.

1.3.2 The modified survey for all types of shafts consists of the following:

- check of oil sealing glands in place
- measurements of wear and their recording
- examination of the results of sterntube lubricating oil analyses, to confirm they have been regularly performed and the recorded parameters are within acceptable limits
- check of the records of lubricating oil consumption, to confirm it is within permissible limits.

In addition, for the different types of shafts, the following is required:

- a) for shafts with keyed propeller coupling:
 - removal of propeller and key, and their examination in way of the connection area
 - examination by an appropriate crack detection method of the after end of the cylindrical part of shaft and forward one third of shaft cone
- b) for shafts with keyless type propeller coupling:
 - check of the tightness of the propeller hub (propeller hood, fore gland)
- c) for shafts with a solid flange coupling at the aft end and variable pitch propeller:
 - check of tightness in way of blade glands and distribution box
 - check of analysis of hydraulic oil
 - working test, as far as practicable, of the blade manoeuvring.

1.3.3 Where the Surveyor considers that the data presented is not entirely to his satisfaction, further dismantling may be required, including withdrawal of the tailshaft.

2 Periodical survey of other propulsion systems

2.1 Rotating and azimuth thrusters

2.1.1 The periodical survey of rotating and azimuth thrusters consists of:

- a) removing the propeller(s) in order to examine the following items, as applicable:
- exposed parts
 - cone and keyway to be checked by an appropriate crack detection method
 - sealing glands
 - threaded end and nut
- b) examining the results of a lubricating oil analysis (water content and presence of material particles) to detect possible deterioration of internal gears and bearings
- c) examining the orientation device.

If the foregoing checks are not satisfactory, dismantling of the internal parts may be required.

2.2 Vertical axis propellers

2.2.1 The periodical survey of vertical axis propeller systems consists of:

- checking the tightness of the oil glands and the backlash of the gears from outside by action on the blades

- checking the condition of gears and couplings from inside the ship
- examining the results of a lubricating oil analysis (water content and presence of material particles) to detect possible deterioration of internal gears and bearings.

If the foregoing checks are not satisfactory, dismantling of the internal parts may be required.

2.3 Pump jet systems

2.3.1 The periodical survey of pump jet systems consists of examining the following parts:

- impeller, shaft and clearances of bearings
- tightness of gland
- water duct
- steering nozzle
- reversing arrangements and control gear.

If the foregoing checks are not satisfactory, further dismantling may be required.

SECTION 6

BOILER SURVEY

1 Steam boilers

1.1

1.1.1 Steam boilers, superheaters and economisers are to be examined internally and externally with the periodicity given in Ch 2, Sec 2, [5.6]. To this end, boilers are to be emptied and suitably prepared for the examination, and the water-steam side and fire side are to be cleaned and cleared of soot. Where necessary, the external surfaces are to be made accessible for inspection by removal of insulation and lining.

The internal examination is to be made on both the water-steam side and fire side.

Review of the following records since the last boiler survey is to be carried out as part of the survey:

- Operation
- Maintenance
- Repair history
- Feed water chemistry.

1.1.2 Subject to the results of this visual examination, the Surveyor may require:

- non-destructive tests for detection of possible defects in critical areas of plating and shells, pipes and stays
- thickness measurements of plating and shells, furnaces, pipes and stays.

If appropriate, a new working pressure may be stipulated by Tasneef

When situated inside boiler combustion chambers, steam pipes of cylindrical boilers are to be examined at their ends, and if deemed necessary by the Surveyor, a sample pipe is to be removed for examination.

1.1.3 If the internal examination is not carried out for practical reasons, the parts subject to pressure are to be submitted to a hydraulic test.

1.1.4 Boiler supports and securing arrangements (fixed and sliding seating, chocks, rolling stays, if any, etc.) are to be examined.

Boiler accessories and mountings (such as valves and studs, water level indicators, safety valves) are to be externally and (as needed) internally examined.

Forced circulation pumps of fired steam generators are, wherever possible, to be opened up.

Fuel supply pipes between pumps and burners, fuel tank valves, pipes and deck control gear are to be examined.

1.1.5 (1/1/2022)

Upon completion of the internal survey, the boiler is to be examined under steam and fuel oil burners and safety devices checked under working conditions.

The boiler safety valves and their relieving gear are to be examined and tested to verify satisfactory operation. However, for exhaust gas heated economisers, if steam cannot be raised at port, the safety valves may be set by the Chief Engineer during navigation, and the results recorded in the log-book for review by Tasneef

1.1.6 When an extension of the interval of the boiler survey is granted based on Ch 2, Sec 2, [5.6.4], the following is to be satisfactorily carried out:

- a) External examination of the boiler
- b) Boiler safety valve relieving gear (easing gear) is to be examined and operationally tested
- c) Boiler protective devices are to be operationally tested
- d) Review of the following records since the last boiler survey:
 - Operation
 - Maintenance
 - Repair history
 - Feed water chemistry.

1.1.7 In addition to the other requirements of [1.1.1] (internal examination), in exhaust gas heated economisers of the shell type all accessible welded joints are to be subjected to a visual examination for cracking. Non-destructive testing may be required for this purpose.

2 Thermal oil heaters

2.1

2.1.1 Thermal oil heaters are to be internally and externally examined. The heater tubes are to be visually examined, and the tightness of the installation (including flange connections, valves and pumps) is to be checked through a test at the working pressure.

2.1.2 Thermal oil heater supports and securing arrangements are to be examined.

Heater accessories and mountings are to be externally and (as needed) internally examined.

Forced circulation pumps are, wherever possible, to be opened up.

Fuel supply pipes between pumps and burners, fuel tank valves, pipes and deck control gear are to be examined.

2.1.3 The following safety devices and instrumentation are to be examined and tested:

- thermal fluid temperature safety device and control
- thermal fluid flow meter
- device for low thermal fluid level in the expansion tank
- other regulation and safety systems.

2.1.4 Where repairs and/or renewal of components exposed to pressure are performed, a pressure test is to be carried out to 1,5 times the working pressure.

2.1.5 Upon completion of the survey, the thermal oil heater is to be examined under working conditions, with particular attention to safety devices and controls of the plant.

Part A
Classification and Surveys

Chapter 4
SERVICE NOTATIONS

- SECTION 1 GENERAL**
- SECTION 2 TANKERS**
- SECTION 3 TANKERS CARRYING CHEMICAL SUBSTANCES**
- SECTION 4 TANKERS CARRYING LIQUIFIED GASEOUS**
- SECTION 5 RO-RO CARGO SHIPS, PASSENGER SHIPS, RO-RO PASSENGER SHIPS**
- SECTION 6 OTHER SERVICE NOTATIONS**

SECTION 1

GENERAL

1 General

1.1

1.1.1 The purpose of this Chapter is to give details on the scope of surveys of certain ships which, due to the service notation assigned and related equipment, need specific requirements to be verified for the maintenance of their class.

1.1.2

These specific requirements either are additional to or supersede those stipulated in Chapter 3, which gives general requirements for surveys applicable to all types of ships: this is indicated in each Section of this Chapter. These surveys are to be carried out at intervals as described in Ch 2, Sec 2, concurrently with the surveys of the same type, i.e. ordinary, intermediate or class renewal surveys, detailed in Chapter 3.

1.1.3

Where specific requirements are given in this Chapter for the class renewal survey, they are additional to the applicable requirements for the ordinary survey.

2 Service notations subject to additional surveys

2.1

2.1.1 The specific requirements detailed in this Chapter are linked to the service notation(s) assigned to the ship at the request of the Owner. Where a ship has more than one service notation, the specific requirements linked to each one are applicable, insofar as they are not contradictory (in such case, the most stringent requirement will be applied).

2.1.2 Tab 1 indicates which service notations are subject to specific requirements, and in which Section or Article they are specified.

Table 1 : Service notations for which specific requirements are applicable

Service notation assigned	Section or Article applicable in this Chapter	Type of surveys affected by these specific requirements
tanker	Sec 2	ordinary survey intermediate survey class renewal survey
tanker carrying chemical substances	Sec 3	ordinary survey intermediate survey class renewal survey
tankers carrying liquefied gaseous	Sec 4	ordinary survey intermediate survey class renewal survey
ro-ro cargo ship passenger ship ro-ro passenger ship	Sec 5	ordinary survey class renewal survey
dredger hopper dredger hopper unit split hopper unit split hopper dredger	Sec 6	ordinary survey class renewal survey
tug	Sec 6	ordinary survey class renewal survey

SECTION 2

TANKERS

1 General

1.1

1.1.1 The requirements of this Section apply to all self-propelled ships which have been assigned the service notation **tanker**.

1.1.2 The requirements for hull surveys apply to the surveys of the hull structure and piping systems in way of cargo tanks, pump rooms, cofferdams, pipe tunnels and void spaces within the cargo area and all water ballast tanks. They are additional to the requirements applicable to the remainder of the ship, given in Chapter 3 according to the relevant surveys.

1.1.3 The requirements contain the minimum extent of examination, thickness measurements and tank testing. When substantial corrosion, as defined in Ch 2, Sec 2, [2.2.7], and/or structural defects are found, the survey is to be extended and is to include additional close-up surveys when necessary.

1.1.4 When, in any survey, thickness measurements are required:

- the procedure detailed in Ch 2, Sec 2, [2.3] is to be applied
- the thickness measurement company is to be part of the survey planning meeting held prior to commencing the survey.

1.1.5 The requirements for machinery surveys apply to surveys of the machinery and equipment in the cargo area or dedicated to cargo service systems and are additional to those given in Chapter 3 for all ships.

2 Ordinary survey - Hull items

2.1 Hull and weather decks

2.1.1 The survey is to include:

- examination of the hull plating and its closing appliances as far as can be seen
- examination of watertight penetrations as far as practicable.
- examination of cargo tank openings, including gaskets, covers, coamings and flame screens
- examination of cargo tank pressure/vacuum valves and flame screens
- examination of flame screens on vents to all bunker tanks

- examination of cargo, crude oil washing, bunker and vent piping systems, including vent masts and headers
- confirmation that wheelhouse doors and windows, sidescuttles and windows in superstructure and deck-house ends facing the cargo area are in satisfactory condition.

2.2 Cargo pump rooms and pipe tunnels

2.2.1 The survey is to include:

- examination of all pump room bulkheads and pipe tunnels (if any) for signs of oil leakage or fractures and, in particular, the sealing arrangements of penetrations in these bulkheads
- examination of the condition of all piping systems, in cargo pump rooms and pipe tunnels (if any)
- examination of the bilge and ballast arrangements.

2.3 Cargo and ballast tanks

2.3.1 Cargo and ballast tanks are to be inspected as indicated in Notes to Tab 1.

3 Ordinary survey - Cargo machinery items

3.1 Cargo area and cargo pump rooms

3.1.1 The Owner or his representative is to declare to the attending Surveyor that no modifications or alterations which might impair safety have been made to the various installations in dangerous zones without prior approval from ^{Tasneef}

The survey is to include:

- confirmation that potential sources of ignition in or near the cargo pump rooms, such as loose gear, excessive product in bilge, excessive vapours, combustible materials etc, are eliminated and that access ladders are in satisfactory condition
- examination, as far as practicable, of cargo, bilge, ballast and stripping pumps for excessive gland seal leakage, verification of proper operation of electrical and mechanical remote operating and shutdown devices and operation of the pump room bilge system, and checking that pump foundations are intact

- confirmation that the ventilation system, including portable equipment, if any, of all spaces in the cargo area (including cargo pump rooms) is operational, ducting is intact, dampers are operational and screens are clean
- confirmation that electrical equipment in dangerous zones, cargo pump rooms and other spaces is in satisfactory condition and has been properly maintained
- confirmation that the remote operation of the cargo pump room bilge system is satisfactory
- examination of the cargo heating system
- examination of the cargo-transfer arrangement and confirmation that the ship's cargo hoses are suitable for their intended purpose and in satisfactory condition
- confirmation that any special arrangement made for bow or stern loading/unloading is in satisfactory condition and test of the means of communication and remote shutdown of the cargo pumps
- examination of the emergency lighting in all cargo pump rooms.

3.2 Instrumentation and safety devices

3.2.1 The survey is to include:

- examination of cargo tank gauging devices, high level alarms and valves associated with overflow control
- verification that installed pressure gauges on cargo discharge lines are properly operational
- confirmation that the required gas detection instruments are on board and satisfactory arrangements have been made for the supply of any required vapour detection tubes
- confirmation that devices provided for measuring the temperature of the cargo, if any, operate satisfactorily.

3.3 Fire-fighting systems in cargo area

3.3.1 The survey is to include:

- a) external examination of piping and cut-out valves of CO₂ fixed fire-fighting systems related to cargo pump rooms
- b) examination of CO₂ fire-fighting systems fitted on board in accordance with the relevant requirements given in Ch 3, Sec 1, [3.4]
- c) check of protection of cargo pump room, and in particular check of:
 - 1) temperature sensing devices for bulkhead glands and alarms;
 - 2) interlock between lighting and ventilation;
 - 3) gas detection system;
 - 4) bilge level monitoring devices and alarms.

3.4 Inert gas system

3.4.1 The survey is to include:

- a) external examination of the whole system, to check the condition of all piping, including vent piping above the upper deck in the cargo tank area and overboard discharges through the shell so far as practicable, and associated components to verify, in particular, the absence of signs of corrosion and leakage of gas, water or other liquid from inert gas and water piping systems or from the pressure/vacuum breaking device
- b) check of proper operation of both inert gas blowers
- c) check of proper operation of ventilation system required for scrubber room (if any)
- d) check of deck water seal for automatic water filling and draining
- e) check of absence of water carry over in the inert gas from the deck water seal and check of the condition of the non-return valve
- f) check of proper operation of all remotely operated or automatically controlled valves and, in particular, of the flue gas isolating valve located on the inert gas supply main after the blowers
- g) check of proper operation of the interlocking feature fitted to prevent soot blowers from operating when the inert gas system is working
- h) check that the gas pressure regulating valve automatically closes when gas blowers are stopped
- i) check, as far as practicable and using simulated conditions where necessary, of the following alarms and safety devices of the inert gas system:
 - 1) high oxygen content of gas in the inert gas main
 - 2) low gas pressure in the inert gas main
 - 3) low pressure in the supply to the deck water seal
 - 4) high temperature of gas in the inert gas main, including automatic shutdown devices
 - 5) low water pressure to the scrubber, including automatic shutdown devices
 - 6) accuracy of portable and fixed oxygen measuring equipment by means of calibration gases
 - 7) high water level in the scrubber, including automatic shutdown devices
 - 8) failure of the inert gas blowers
 - 9) failure of the power supply to the automatic control system for the gas regulating valve and to the instrumentation for continuous indication and permanent recording of pressure and oxygen content in the inert gas main
 - 10) high pressure of gas in the inert gas main
- j) check, when practicable, of the proper operation of the inert gas system on completion of the checks listed above.

4 Intermediate survey - Hull items

4.1 Weather decks

4.1.1 The survey is to include:

- examination, as far as applicable, of cargo, crude oil washing, bunker, ballast, steam and vent piping systems as well as vent masts and headers.
If upon examination there is any doubt as to the condition of the piping, pressure testing, thickness measurement or both may be required
- confirmation that cargo pipes are electrically bonded to the hull
- examination of vent line drainage arrangements.

4.2 Cargo and ballast tanks

4.2.1 The requirements given in Table 1 are to be verified.

5 Intermediate survey - Cargo machinery items

5.1 General

5.1.1

In addition to the requirements of ordinary surveys the class intermediate survey is to include the provisions given in [5.2] and [5.3].

5.2 Cargo area and cargo pump rooms

5.2.1 A general examination of the electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks is to be carried out for defective and non-certified safe type electrical equipment and fixtures, non-approved lighting and fixtures, and improperly installed or defective or dead-end wiring.

5.2.2 The electrical insulation resistance of the electrical equipment and circuits terminating in or passing through dangerous zones is to be tested; however, in cases where a proper record of testing is maintained, consideration may be given to accepting recent test readings effected by the ship's personnel.

5.2.3 The satisfactory condition of the cargo heating system is to be verified.

5.3 Inert gas system

5.3.1 For ships over 16 years old at the time of the intermediate survey due date, the following is to be carried out:

- main parts such as the scrubber, washing machines, blowers, deck water seal and non-return valve are to be opened out as considered necessary and examined
- gas distribution lines and shut-off valves, including soot blower interlocking devices, are to be examined as deemed necessary
- all automatic shutdown devices and alarms are to be examined and tested.

6 Class renewal survey - Hull items

6.1 Scope of Survey

6.1.1

In addition to the requirements of ordinary surveys, the class renewal survey is to include examination, tests and checks of sufficient extent to ensure that the hull and related piping, as required in [6.5.1], are in satisfactory condition and fit for their intended purpose for the new period of class to be assigned, subject to proper maintenance and operation and to periodical surveys being carried out at the due dates.

6.1.2 All cargo tanks/holds, ballast tanks, including double bottom tanks, pump rooms, pipe tunnels, cofferdams and void spaces bounding cargo tanks/holds, decks and outer hull are to be examined, and this examination is to be supplemented by thickness measurement and testing required in [6.4] and [6.5], respectively, to ensure that the structural integrity remains effective. The aim of the examination is to discover substantial corrosion, significant deformation, fractures, damage or other structural deterioration that may be present.

6.1.3 The survey extent of ballast tanks converted to void spaces will be specially considered by ^{Tasneef} in relation to the requirements for ballast tanks.

6.1.4

Where provided, the condition of the corrosion prevention system of cargo tanks is to be examined.

A ballast tank is to be examined at subsequent ordinary surveys where:

- a hard protective coating has not been applied since the time of construction, or
- a soft coating has been applied, or
- substantial corrosion is found within the tank, or
- the hard protective coating is found to be in less than good condition and the hard protective coating is not repaired to the satisfaction of the Surveyor, or
- the tank has a common plane boundary with a cargo tank with any means of heating.

Thickness measurements are to be carried out as deemed necessary by the Surveyor.

6.1.5 The class renewal survey is to include a bottom survey in dry condition as laid down in Ch 3, Sec 4, [2.1].

The overall and close-up surveys and thickness measurements, as applicable, of the lower portions of cargo tanks and ballast tanks (see Note 1) are to be carried out in accordance with the applicable requirements for class renewal surveys, if not already performed.

Note 1: Lower portions of cargo and ballast tanks are considered to be the parts below the light ballast waterline.

6.2 Overall and close-up surveys

6.2.1 Each class renewal survey is to include an overall survey of all tanks/holds and all spaces.

6.2.2 The minimum requirements for close-up surveys at class renewal surveys are given in Tab 2.

6.2.3 The Surveyor may extend the close-up survey as deemed necessary, taking into account the maintenance of the tanks under survey, the condition of the corrosion prevention system and also in the following cases:

- where tanks have structural arrangements or details which have suffered defects in similar spaces or on similar ships according to available information
- where tanks have structures approved with reduced scantlings due to an approved corrosion control system.

6.2.4 For areas in tanks where hard protective coatings are found to be in good condition, as defined in Ch 2, Sec 2, [2.2.11], the extent of close-up surveys required according to Tab 2 may be specially considered.

6.3 Thickness measurements

6.3.1 The minimum requirements for thickness measurements at class renewal surveys are given in Ch. 3, Sec. 3, Tab. 2.

6.3.2 The ^{Tasneef} Surveyor may extend the measurements as deemed appropriate. Additional measurements are to be provided for areas with substantial corrosion as defined in Ch. 2 Sec. 2 [2.2.7]. As guidance, the criteria given in Ch. 3, Sec. 3, Tab.3 may be applied. These extended thickness measurements are to be carried out before the survey is credited as completed. Suspect areas identified at previous surveys are to be examined. Areas of substantial corrosion identified at previous surveys are to be subjected to thickness measurements.

6.3.3 The Surveyor may further extend the thickness measurements as deemed necessary.

6.3.4 When pitting is found on bottom plating and its intensity is 20% or more, thickness measurements are to be extended in order to determine the actual plate thickness out of the pits and the depth of the pits. Where the wastage is in the substantial corrosion range or the average depth of pitting is 1/3 or more of the actual plate thickness, the pitted plate is to be considered as a substantially corroded area.

6.3.5 For areas in tanks where hard protective coatings are found to be in good condition as defined in Ch 2, Sec 2, [2.2.10], the extent of thickness measurements according to Ch. 3, Sec. 3, Tab. 2 may be specially considered.

6.3.6 Transverse sections are to be chosen where the largest reductions are suspected to occur or are revealed from deck plating measurements.

6.3.7 In cases where two or three sections are to be measured, at least one is to include a ballast tank within 0,5L amidships.

6.4 Tank testing

6.4.1 The requirements for tank testing at class renewal surveys are given in Tab 3.

6.4.2 The Surveyor may extend the tank testing as deemed necessary.

6.4.3 Boundaries of ballast tanks are to be tested with a head of liquid to the top of air pipes.

6.4.4 Boundaries of cargo tanks are to be tested to the highest point that liquid will rise to under service conditions.

6.5 Cargo area and cargo pump rooms

6.5.1 Cargo piping on deck, including crude oil washing (cow) piping, and cargo and ballast piping within the cargo area are to be examined and operationally tested to working pressure to the attending Surveyor's satisfaction to ensure that their tightness and condition remain satisfactory. Special attention is to be given to any ballast piping in cargo tanks and cargo piping in ballast tanks and void spaces. Surveyors are to be advised on all occasions when this piping, including valves and fittings, is opened during repair periods and can be examined internally.

The Surveyor may require dismantling and/or thickness measurements of piping. A hydraulic test is to be carried out in the event of repair or dismantling of cargo, crude oil washing, or ballast piping, or where doubts arise.

6.5.2 All safety valves on cargo piping and of cargo tanks are to be dismantled for examination, adjusted and, as applicable, resealed.

6.5.3 All cargo pump room boundaries are to be generally examined. All gas-tight shaft sealing devices are to be examined. The bottom of cargo pump rooms is to be presented clean for the examination of stripping devices and gutters.

7 Class renewal survey - Cargo machinery items

7.1 Cargo area and cargo pump rooms

7.1.1 Ballast and stripping pumps are to be internally examined and prime movers checked. A working test is to be carried out, as far as practicable.

Maintenance records of cargo pumps are to be made available to the Surveyor.

7.1.2 Where a crude oil washing system is fitted, piping, pumps, valves and deck-mounted washing machines are to be examined and tested for signs of leakage, and anchoring devices of deck-mounted washing machines are to be checked to the Surveyor's satisfaction.

7.1.3 The satisfactory condition of the cargo heating system is to be verified and, if deemed necessary by the Surveyor, the system is to be pressure tested.

7.1.4 An operating test of the remote control of pumps and valves and of automatic closing valves is to be carried out.

7.1.5 A general examination of the electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks is to be carried out for defective and non-certified safe type electrical equipment and fixtures, non-approved lighting and fixtures, and improperly installed or defective or dead-end wiring.

The electrical insulation resistance of the electrical equipment and circuits terminating in or passing through the dangerous zones is to be tested; however, in cases where a proper record of testing is maintained, consideration may be given to accepting recent test readings effected by the ship's personnel.

7.2 Fire-fighting systems in cargo area

7.2.1 The survey is to include the examination of CO₂ fire-fighting systems fitted on board for the protection of the cargo pump room in accordance with the relevant requirements given in Ch 3, Sec 3, [3.8].

7.3 Inert gas system

7.3.1 In addition to the inspections required at the intermediate survey, the following is to be carried out:

- a) an internal examination of:
 - the inert gas generator, where fitted
 - the scrubber
 - the deck water seal including the non-return valve
 - the pressure/vacuum breaking device
 - the cooling water systems including overboard discharge from the scrubber
 - all valves
- b) a test to verify the proper operation of the system upon completion of all survey checks.

Table 1 : Intermediate survey of cargo and water ballast tanks for tankers

Age of the ship (in years at the time of intermediate survey)		
age ≤ 10	10 < age ≤ 20	Age > 20
	General inspection of at least two cargo tanks as indicated by ^{Tasneef} Surveyor	General inspection of all cargo tanks
General inspection of at least two ballast tanks as indicated by ^{Tasneef} Surveyor	General inspection of all ballast tanks	General inspection of all ballast tanks
Notes: <ul style="list-style-type: none"> • When considered necessary by the Surveyor, thickness measurement and testing are to be carried out to ensure that the structural integrity remains effective. • A ballast tank is to be examined at subsequent ordinary surveys where: <ul style="list-style-type: none"> - a hard protective coating has not been applied since the time of construction, or - a soft coating has been applied, or - substantial corrosion is found within the tank, or - the hard protective coating is found to be in less than good condition and the hard protective coating is not repaired to the satisfaction of the Surveyor, or the tank has a common plane boundary with a cargo tank with any means of heating. 		

Table 2 : Requirements for general and close-up survey at class renewal surveys of tankers

Age of ship (in years at time of class renewal survey)			
age ≤ 10	10 < age ≤ 20	20 < age ≤ 30	Age > 30
General survey of all cargo and ballast tanks (1)	General survey of all cargo and ballast tanks (1)	General survey of all cargo and ballast tanks (1)	General survey of all cargo and ballast tanks (1)
Close-up survey of one web frame ring and one of the transverse bulkheads in a ballast tank	Close-up survey of all the web rings and of two transverse bulkheads in a ballast tank	Close-up survey of all the web rings and of the two transverse bulkheads of two ballast tanks	Close-up survey of all the web rings and of the two transverse bulkheads of all the ballast tanks
	Close-up survey of a deck transverse web frame and one transverse bulkhead within a cargo hold	Close-up survey of a deck transverse web frame, bottom transverse web frame and two transverse bulkheads within two cargo holds	Close-up survey of a deck transverse web frame, bottom transverse web frame and two transverse bulkheads of all the cargo holds
(1) For spaces other than double bottoms without a hard protective treatment or if provided with a soft treatment, or if the treatment is in a poor condition and has not been renewed, such spaces are to be internally inspected at the ordinary survey. When such conditions are verified in double bottoms used as ballast tanks, such spaces may be internally inspected at the ordinary survey.			

Table 3 : Requirements for tank testing at class renewal surveys of tankers

Age of ship (in years at time of class renewal survey)		
age ≤ 20	20 < age ≤ 30	Age > 30
All ballast tank boundaries	All ballast tank boundaries	All ballast tank boundaries
Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, pump rooms or cofferdams and some representative fuel tanks	Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, pump rooms or cofferdams and some representative fuel tanks	Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, pump rooms or cofferdams and some representative fuel tanks
	All cargo tanks boundaries facing segregated cargoes	All other cargo tanks

SECTION 3

TANKERS CARRYING CHEMICAL SUBSTANCES

1 General

1.1 Application

1.1.1 The requirements of this Section apply to all self-propelled ships which have been assigned tankers **Type C** or **Type N** when carrying chemical substances.

1.1.2 The requirements for hull surveys apply to the surveys of the hull structure and piping systems in way of cargo tanks, pump rooms, cofferdams, pipe tunnels and void spaces within the cargo area and all water ballast tanks. These requirements, however, do not apply to independent tanks on deck. They are additional to the requirements applicable to the remainder of the ship, given in Chapter 3 according to the relevant surveys.

1.1.3 The requirements contain the minimum extent of examination, thickness measurements and tank testing. When substantial corrosion, as defined in Ch 2, Sec 2, [2.2.7], and/or structural defects are found, the survey is to be extended and is to include additional close-up surveys when necessary.

1.1.4 When, in any survey, thickness measurements are required:

- the procedure detailed in Ch 2, Sec 2, [2.3] is to be applied
- the thickness measurement company is to be part of the survey planning meeting held prior to commencing the survey.

1.1.5 The requirements for machinery surveys apply to surveys of the machinery and equipment in the cargo area or dedicated to cargo service systems and are additional to those given in Chapter 3 for all ships.

2 Ordinary survey - Hull items

2.1 Hull and weather decks

2.1.1 The survey is to include:

- examination of the hull plating and its closing appliances as far as can be seen
- examination of watertight penetrations as far as practicable
- examination of cargo tank openings, including gaskets, covers, coamings and flame screens
- examination of cargo tank pressure/vacuum valves and flame screens
- examination of flame screens on vents to all bunker tanks

- examination of cargo, bunker, vent piping systems, including vent masts and headers
- confirmation that wheelhouse doors and windows, sidescuttles and windows in superstructure and deckhouse ends facing the cargo area are in satisfactory condition
- confirmation that pumps, valves and pipelines are identified and distinctively marked.

2.2 Cargo pump rooms and pipe tunnels

2.2.1 The survey is to include:

- examination of all pump room bulkheads and pipe tunnels (if any) for signs of chemical cargo leakage or fractures and, in particular, the sealing arrangements of penetrations in pump room bulkheads
- examination of the condition of all piping systems in cargo pump rooms and pipe tunnels (if any)
- examination of the bilge and ballast arrangements and confirmation that pumps and pipelines are identified.

2.3 Ballast tanks

2.3.1 Ballast tanks and combined tanks are to be internally examined when required as a consequence of the results of the class renewal survey or the intermediate survey; see notes to Tab 1.

2.3.2 When considered necessary by the Surveyor, or where extensive corrosion exists, thickness measurements are to be carried out and if the results indicate that substantial corrosion is present, the extent of the measurements is to be increased on the basis of the guidelines as indicated in Ch 3, Sec 3, Tab 3.

These extended thickness measurements are to be carried out before the survey is credited as completed.

Suspect areas identified at previous surveys are to be examined. Areas of substantial corrosion identified at previous surveys are to have thickness measurements taken.

3 Ordinary survey - Cargo machinery items

3.1 Cargo area and cargo pump rooms

3.1.1 The Owner or his representative is to declare to the attending Surveyor that no modifications or alterations which might impair safety have been made to the various installations in dangerous zones without prior approval from ^{Tasneef}

The survey is to include:

- confirmation that potential sources of ignition in or near the cargo pump rooms, such as loose gear, excessive

product in bilge, excessive vapours, combustible materials etc, are eliminated and that access ladders are in satisfactory condition

- examination, as far as practicable, of cargo, bilge, ballast and stripping pumps for excessive gland seal leakage, verification of proper operation of electrical and mechanical remote operating and shutdown devices and operation of the pump room bilge system, and checking that pump foundations are intact
- confirmation that the ventilation system, including portable equipment, if any, of all spaces in the cargo area (including cargo pump rooms) is operational, ducting is intact, dampers are operational and screens are clean
- confirmation that electrical equipment in dangerous zones, cargo pump rooms and other spaces is in satisfactory condition and has been properly maintained
- confirmation that the remote operation of the cargo pump room bilge system is satisfactory
- confirmation that cargo pump room rescue arrangements are in order
- confirmation that removable pipe lengths or other approved equipment necessary for cargo separation are available and in satisfactory condition
- examination of the cargo heating/cooling system and sampling arrangements where required
- examination of the cargo-transfer arrangement and confirmation that the ship's cargo hoses are suitable for their intended purpose and in satisfactory condition
- confirmation that any special arrangement made for bow or stern loading/unloading is in satisfactory condition and test of the means of communications and the remote shutdown for the cargo pumps
- confirmation that, if applicable, the provisions made for chemical products which have special requirements as per Pt E, Ch 2, App. 1 are satisfactory.

3.2 Instrumentation and safety devices

3.2.1 The survey is to include the following items, as far as required or fitted:

- confirmation that installed pressure gauges on cargo discharge lines are properly operational
- examination of gauging devices, high level alarms and valves associated with overflow control
- confirmation that devices provided for measuring the temperature of the cargo and associated alarms operate satisfactorily
- confirmation that the required gas detection instruments are on board and satisfactory arrangements have been made for the supply of any required vapour detection tubes
- confirmation that the cargo sample stowage arrangements are in satisfactory condition.

3.3 Fire-fighting systems in cargo area

3.3.1 The survey is to include:

- a) external examination of piping and cut-out valves of CO₂ fixed fire-fighting systems related to cargo pump rooms
- b) examination of CO₂ fixed fire-fighting systems fitted on board in accordance with the relevant requirements given in Ch 3, Sec 1, [3.4.2].

3.4 Inert gas system and inert/padding/drying gas

3.4.1 If an inert gas system such as that installed on board oil tankers is fitted, the requirements given in Sec 3, [3.4] are to be complied with.

3.4.2 If an inert gas system consisting of a gas container package is fitted, arrangements are to be made for sufficient inert or padding gas to be carried to compensate for normal losses and means are to be provided for monitoring of ullage spaces.

3.4.3 If drying gas is necessary to supply the cargo spaces, arrangements are to be made for sufficient drying gas to be carried to compensate for normal losses and means are to be provided for monitoring of ullage spaces.

3.4.4 When drying agents are used on air inlets to cargo tanks, it is to be verified that arrangements are made for sufficient medium to be carried.

4 Intermediate survey - Hull items

4.1 General

4.1.1

In addition to the requirements of ordinary surveys the class intermediate survey is to include the requirements given in [4.2].

4.2 Weather decks

4.2.1 The survey is to include:

- examination, as far as applicable, of cargo, stripping, cargo washing, bunker, ballast, steam and vent piping systems as well as vent masts and headers. If upon examination there is any doubt as to the condition of the piping, pressure testing, thickness measurement or both may be required
- confirmation that the pipelines and independent cargo tanks, where applicable, are electrically bonded to the hull
- examination of vent line drainage arrangements.

4.3 Cargo and ballast tanks

4.3.1 The inspections of cargo and ballast tanks are to be carried out according to the requirements given in Tab 1.

5 Intermediate survey - Cargo machinery items

5.1 General

5.1.1

In addition to the requirements of ordinary surveys the class intermediate survey is to include the provisions given in [5.2] and [5.3].

5.2 Cargo area and cargo pump rooms

5.2.1 A general examination of the electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks is to be carried out for defective and non-certified safe type electrical equipment, non-approved lighting and fixtures, and improperly installed or defective or dead-end wiring.

5.2.2 The electrical insulation resistance of the electrical equipment and circuits terminating in or passing through the dangerous zones is to be tested; however, in cases where a proper record of testing is maintained, consideration may be given to accepting recent test readings effected by the ship's personnel.

5.2.3 The satisfactory condition of the cargo heating/cooling system is to be verified.

5.3 Inert gas system

5.3.1 For ships over 16 years old at the time of the intermediate survey due date, if an inert gas system such as that installed on board oil tankers is fitted, the requirements given in Sec 3, [5.2] for intermediate survey of oil tankers are to be complied with.

5.3.2 For ships over 16 years old at the time of the intermediate survey due date and fitted with another type of inert gas producing system, the main parts such as the inert gas generator, deck water seal or equivalent backflow arrangement, and segregation devices, as fitted are to be overhauled for examination and alarms are to be tested.

Inert gas producer isolating valves, when fitted, are to be dismantled for examination.

6 Renewal survey - Hull items

6.1 Scope of Survey

6.1.1

In addition to the requirements of ordinary surveys, the class renewal survey is to include examination, tests and checks of sufficient extent to ensure that the hull and related piping, as required in [6.5.1], is in satisfactory condition and is fit for its intended purpose for the new period of class to be assigned, subject to proper maintenance and operation and to periodical surveys being carried out at the due dates.

6.1.2 All cargo tanks, ballast tanks, including double bottom tanks, pump rooms, pipe tunnels, cofferdams and void

spaces bounding cargo tanks, decks and outer hull are to be examined, and this examination is to be supplemented by thickness measurement and testing as required in [6.4] and [6.5], respectively, to ensure that the structural integrity remains effective. The aim of the examination is to discover substantial corrosion, significant deformation, fractures, damage or other structural deterioration, that may be present.

6.1.3 The survey extent of ballast tanks converted to void spaces will be specially considered by the Society in relation to the requirements for ballast tanks.

6.1.4

Where provided, the condition of the corrosion prevention system of cargo tanks is to be examined.

A ballast tank is to be examined at subsequent ordinary surveys where:

- a) a hard protective coating has not been applied since the time of construction, or
- b) a soft coating has been applied, or
- c) substantial corrosion is found within the tank, or
- d) the hard protective coating is found to be in less than good condition and the hard protective coating is not repaired to the satisfaction of the Surveyor.

Thickness measurements are to be carried out as deemed necessary by the Surveyor.

6.1.5 In the case of independent cargo tanks, the survey consists of:

- an external examination of cargo tanks
- an examination of cargo tank supports, chocks, keys and the adjacent hull structure with non-destructive testing if deemed necessary.

6.1.6 The Owner or his representative is to declare to the attending Surveyor that the arrangements in cargo tanks (including coating) related to the transported products are suitable for the purpose.

6.1.7 The class renewal survey is to include a bottom survey in dry condition as laid down in Ch 3, Sec 4, [2.1].

The overall and close-up surveys and thickness measurements, as applicable, of the lower portions of cargo tanks and ballast tanks (see Note 1) are to be carried out in accordance with the applicable requirements for class renewal surveys, if not already performed.

Note 1: Lower portions of cargo and ballast tanks are considered to be the parts below the light ballast waterline.

6.2 Overall and close-up surveys

6.2.1 Each class renewal survey is to include an overall survey of all tanks and spaces. For fuel oil, lube oil and fresh water tanks, however, the requirements given in Ch 3, Sec 3 Tab. 1 are to be complied with.

6.2.2 The survey of stainless steel tanks may be carried out as an overall survey supplemented by close-up survey as deemed necessary by the Surveyor.

6.2.3 Each class renewal survey is to include a close-up examination of sufficient extent to establish the condition of cargo tanks and water ballast tanks. The minimum requirements for close-up surveys are given in Tab 2.

6.2.4 The Surveyor may extend the close-up survey as deemed necessary, taking into account the maintenance of the tanks under survey, the condition of the corrosion prevention system and also in the following cases:

- where tanks have structural arrangements or details which have suffered defects in similar spaces or on similar ships according to available information
- where tanks have structures approved with reduced scantlings due to an approved corrosion control system.

6.2.5 For areas in tanks where hard protective coatings are found to be in good condition, as defined in Ch 2, Sec 2, [2.2.11], the extent of close-up surveys required according to Tab 2 may be specially considered.

6.3 Thickness measurements

6.3.1 The minimum requirements for thickness measurements at class renewal surveys are given in Ch 3, Sec 3, Tab 3. Thickness measurement of stainless steel hull structure and piping may be waived by ^{Tasneef} except for clad steel plating.

6.3.2 The ^{Tasneef} Surveyor may extend the measurements as deemed satisfactory. Additional measurements are to be provided for areas with substantial corrosion as defined in Ch 2, Sec 2, [2.2.7]. As guidelines, the criteria given in Ch 3, Sec 3, Tab 3 may be applied.

These extended thickness measurements are to be carried out before the survey is credited as completed. Suspect areas identified at previous surveys are to be examined. Areas of substantial corrosion identified at previous surveys are to be subjected to thickness measurements.

6.3.3 The Surveyor may further extend the thickness measurements as deemed necessary.

6.3.4 When pitting is found on bottom plating and its intensity is 20% or more, thickness measurements are to be extended in order to determine the actual plate thickness out of the pits and the depth of the pits. Where the wastage is in the substantial corrosion range or the average depth of pitting is 1/3 or more of the actual plate thickness, the pitted plate is to be considered as a substantially corroded area.

6.3.5 For areas in tanks where hard protective coatings are found to be in good condition as defined in Ch 2, Sec 2, [2.2.11], the extent of thickness measurements according to Tab 3 may be specially considered. Transverse sections are to be chosen where the largest reductions are suspected to occur or are revealed from deck plating measurements.

6.3.6 In cases where two or three sections are to be measured, at least one is to include a ballast tank within 0,5L amidships.

6.4 Tank testing

6.4.1 The requirements for tank testing at class renewal surveys are given in Tab 3. Pressure testing of cargo tanks may be accepted based on confirmation from the Master stating that testing has been carried out according to the requirements with a satisfactory result.

6.4.2 The Surveyor may extend the tank testing as deemed necessary.

6.4.3 Boundaries of ballast tanks are to be tested with a head of liquid to the top of air pipes.

6.4.4 Boundaries of cargo tanks are to be tested to the highest point that liquid will rise to under service conditions.

6.4.5 The testing of double bottom tanks and other spaces not designed for the carriage of liquid may be omitted, provided a satisfactory internal examination is carried out together with an examination of the tank top.

6.5 Cargo area and cargo pump rooms

6.5.1 Cargo piping on deck and cargo and ballast piping within the cargo area are to be examined and operationally tested to working pressure to the attending Surveyor's satisfaction to ensure that their tightness and condition remain satisfactory. Special attention is to be given to any ballast piping in cargo tanks and cargo piping in ballast tanks and void spaces. Surveyors are to be advised on all occasions when this piping, including valves and fittings, is opened during repair periods and can be examined internally.

The Surveyor may require dismantling and/or thickness measurements of piping. A hydraulic test is to be carried out in the event of repair or dismantling of cargo or ballast piping, or where doubts arise.

6.5.2 Vent line drainage arrangements are to be examined. It is to be verified that cargo piping and independent cargo tanks, where applicable, are electrically bonded to the hull.

6.5.3 For ships over 16 years of age, selected steel cargo pipes outside cargo tanks, cargo/slop discharge pipes passing through ballast tanks and void spaces and ballast pipes passing through cargo tanks are to be:

- subjected to thickness measurement at random, or selected pipe lengths are to be opened for internal inspection
- pressure tested to the maximum working pressure.

Special attention is to be given to cargo/slop discharge piping through ballast tanks and void spaces.

6.5.4 All safety valves on cargo piping and of cargo tanks are to be dismantled for examination, adjusted and, as applicable, resealed.

6.5.5 All cargo pump room boundaries are to be generally examined. All gas-tight shaft sealing devices are to be examined. The bottom of cargo pump rooms is to be presented clean for the examination of stripping devices and gutters.

7 Renewal survey - Cargo machinery items

7.1 Cargo area and cargo pump rooms

7.1.1 Ballast and stripping pumps are to be internally examined and prime movers checked. A working test is to be carried out, as far as practicable.

Maintenance records of cargo pumps are to be made available to the Surveyor.

7.1.2 Where a crude oil washing system is fitted, piping, pumps, valves and deck-mounted washing machines are to be examined and tested for signs of leakage, and anchoring devices of deck-mounted washing machines are to be checked to the Surveyor's satisfaction.

7.1.3 The satisfactory condition of the cargo heating system is to be verified and, if deemed necessary by the Surveyor, the system is to be pressure tested.

7.1.4 Spares for cargo area mechanical ventilation fans are to be available on board.

7.1.5 Heat exchangers and anti-sparking fans are to be examined.

7.1.6 An operating test of the remote control of pumps and valves and of automatic closing valves is to be carried out.

7.1.7 A general examination of the electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks is to be carried out for defective and non-certified safe type electrical equipment and fixtures, non-approved lighting and fixtures, and improperly installed or defective or dead-end wiring.

The electrical insulation resistance of the electrical equipment and circuits terminating in or passing through the dangerous zones is to be tested; however, in cases where a proper record of testing is maintained, consideration may be given to accepting recent test readings effected by the ship's personnel.

7.2 Fire-fighting systems in cargo area

7.2.1 The survey is to include the examination of CO₂ fixed fire-fighting systems fitted on board for the protection of the cargo pump room in accordance with the relevant requirements given in Ch 3, Sec 3, [3.8].

7.3 Inert gas system

7.3.1 The requirements given in [5.2] for intermediate survey are to be complied with.

7.3.2 If an inert gas system such as that installed on board oil tankers is fitted, the requirements given in Sec 3, [7.3] for class renewal surveys of oil tankers are to be complied with.

Table 1 : Intermediate survey of cargo and water ballast tanks for chemical tankers

Age of the ship (in years at the time of intermediate survey)		
age ≤ 10	10 < age ≤ 20	Age > 30
	General inspection of at least two cargo tanks as indicated by ^{Tasneef} Surveyor	General inspection of all cargo tanks
General inspection of at least two ballast tanks as indicated by ^{Tasneef} Surveyor	General inspection of all ballast tanks as indicated by ^{Tasneef} Surveyor	General inspection of all ballast tanks
<p>Notes:</p> <p>When considered necessary by the Surveyor, thickness measurement and testing are to be carried out to ensure that the structural integrity remains effective.</p> <p>A ballast tank is to be examined at subsequent ordinary surveys where:</p> <ul style="list-style-type: none"> • a hard protective coating has not been applied since the time of construction, or • a soft coating has been applied, or • substantial corrosion is found within the tank, or • the hard protective coating is found to be in less than good condition and the hard protective coating is not repaired to the satisfaction of the Surveyor, or <p>the tank has a common plane boundary with a cargo tank with any means of heating.</p>		

Table 2 : Requirements for general and overall close-up survey at class renewal surveys of chemical tankers

Age of ship (in years at time of class renewal survey)			
age ≤ 10	10 < age ≤ 20	20 < age ≤ 30	Age > 30
General survey of all cargo and ballast tanks (1)	General survey of all cargo and ballast tanks (1)	General survey of all cargo and ballast tanks (1)	General survey of all cargo and ballast tanks (1)
Close-up survey of one web frame ring and one of the transverse bulkheads in a ballast tank	Close-up survey of all the web rings and of two transverse bulkheads in a ballast tank	Close-up survey of all the web rings and of the two transverse bulkheads of two ballast tanks	Close-up survey of all the web rings and of the two transverse bulkheads of all the ballast tanks
	Close-up survey of a deck transverse web frame and one transverse bulkhead within a cargo hold	Close-up survey of a deck transverse web frame, bottom transverse web frame and two transverse bulkheads within two cargo holds	Close-up survey of a deck transverse web frame, bottom transverse web frame and two transverse bulkheads of all the cargo holds
(1) For spaces other than double bottoms without a hard protective treatment or if provided with a soft treatment, or if the treatment is in a poor condition and has not been renewed, such spaces are to be internally inspected at the ordinary survey. When such conditions are verified in double bottoms used as ballast tanks, such spaces may be internally inspected at the ordinary survey.			

Table 3 : Requirements for tank testing at class renewal surveys of chemical tankers

Age of ship (in years at time of class renewal survey)		
age ≤ 20	20 < age ≤ 30	Age > 30
All ballast tank boundaries	All ballast tank boundaries	All ballast tank boundaries
Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, pump rooms or cofferdams and some representative fuel tanks	Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, pump rooms or cofferdams and some representative fuel tanks	Cargo tank boundaries facing ballast tanks, void spaces, pipe tunnels, pump rooms or cofferdams and some representative fuel tanks
	All cargo tanks boundaries facing segregated cargoes	All other cargo tanks

SECTION 4

TANKERS CARRYING LIQUIFIED GASES

1 General

1.1 Application

1.1.1 The requirements of this Section apply after construction to all self-propelled ships which have been assigned the service notation **tankers (gas)**.

Such service notation for tankers carrying dangerous gas will be completed by the feature notation **Type G**.

1.1.2 The requirements apply to the surveys of the hull structure and piping systems in way of cargo tanks, cofferdams, pipe tunnels and void spaces within the cargo area and all water ballast tanks. They are additional to the requirements applicable to the remainder of the ship, given in Chapter 3 according to the relevant surveys.

1.1.3 The requirements contain the minimum extent of examination, thickness measurements and tank testing. When substantial corrosion, as defined in Ch 2, Sec 2, [2.2.7], and/or structural defects are found, the survey is to be extended and is to include additional close-up surveys when necessary.

1.2 Definition

1.2.1 MARVS: is the maximum allowed relief valve settings of a cargo tanks.

2 Ordinary survey - Hull items

2.1 General

2.1.1 The ordinary survey of cargo containment and cargo handling systems is preferably carried out during loading or unloading operations. Access to cargo tanks and/or inerted hold spaces is normally not required.

2.1.2 Gas plant operational record (log) entries since the last survey are to be examined in order to check the past performance of the system and to establish whether certain parts have shown any irregularities in operation. The evaporation rate and the inert gas consumption are also to be considered.

2.2 Weather decks and cargo handling rooms

2.2.1 The survey is to include:

- examination of all accessible gas-tight bulkhead penetrations including gas-tight shaft sealings

- examination of the sealing arrangements for tanks or tank domes penetrating decks or tank covers
- examination of vapour and gas tightness devices of the wheelhouse windows and doors, sidescuttles and windows in way of ends of superstructures and deckhouses facing the cargo area or bow or stern loading/unloading arrangements, and closing devices of air intakes and openings into accommodation, service and machinery spaces and control stations
- examination of cargo and process piping, including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements
- examination of venting systems, including vent masts and protective screens, for cargo tanks, interbarrier spaces, hold spaces, fuel tanks and ballast tanks
- examination of cargo tank and interbarrier space relief valves and associated safety systems and alarms
- confirmation that the certificate for the relief valve opening/closing pressures is on board
- examination of drip trays or insulation for deck protection against cargo leakage
- examination of the cargo pump room, cargo compressor room and cargo control room
- confirmation of proper maintenance of arrangements for the airlocks
- confirmation that all accessible cargo piping systems are electrically bonded to the hull.

2.3 Other arrangements or devices

2.3.1 The survey is to include:

- confirmation that the ship's cargo hoses are suitable for their intended purpose and in satisfactory condition
- confirmation that any special arrangement made for bow or stern loading/unloading is satisfactory
- confirmation that relevant instruction and information material such as cargo handling plans, filling limit information, cooling down procedures etc is on board
- confirmation that, if applicable, the provisions made for products which have special arrangements as per Pt E, Ch 2, App. 1 are satisfactory.

2.4 Ballast tanks

2.4.1 Ballast tanks are to be internally examined when required as a consequence of the results of the class renewal survey or the intermediate survey; see [6.1.3].

2.4.2 When considered necessary by the Surveyor or where extensive corrosion exists, thickness measurements are to be carried out. Where substantial corrosion, as defined in Ch 2, Sec 2, [2.2.7], is found, the extent of thickness measurements is to be increased to the satisfaction of the Surveyor.

3 Ordinary survey - Cargo machinery items

3.1 Cargo area, cargo compressor rooms and cargo pump rooms

3.1.1 The survey is to include:

- examination of mechanical ventilation fans in gas-dangerous spaces and zones
- examination and confirmation of the satisfactory operation of mechanical ventilation of spaces normally entered during operation
- examination, as far as possible during operation, of cargo heat exchangers, vaporisers, pumps, compressors and hoses
- confirmation that fixed and/or portable ventilation arrangements provided for spaces not normally entered are satisfactory
- examination of the gas detection safety arrangements for cargo control rooms and of the measures taken to exclude ignition sources when such spaces are not gas-safe
- examination of cargo (if accessible), bilge, ballast and stripping pumps for excessive gland seal leakage
- confirmation that electrical equipment in gas-dangerous spaces and zones is in satisfactory condition and has been properly maintained
- examination, as far as possible, of arrangements for the use of cargo as fuel, and associated instrumentation and safety devices
- confirmation that, if fitted, cargo reliquefaction or refrigeration equipment is in satisfactory condition
- confirmation that relevant instruction and information material such as cargo handling plans, filling limit information, cooling down procedures etc is available on board.

3.2 Instrumentation and safety devices

3.2.1 The survey is to include:

- confirmation that installed pressure gauges on cargo discharge lines are operational (see Note 1)
- confirmation that cargo tank liquid level gauges are operational and that high level alarms as well as automatic shut-off systems are satisfactory (see Note 1)
- confirmation that the temperature indicating equipment of the cargo containment system and associated alarms are satisfactory (see Note 1)
- examination of the log-books for confirmation that the emergency shutdown system has been tested

- confirmation that cargo tank, hold and insulation space pressure gauging systems and associated alarms are satisfactory
- examination, and testing as appropriate, of fixed gas detection equipment
- confirmation of the availability and suitability of the portable gas detection equipment and instruments for measuring oxygen levels.

Note 1: Verification of these devices is to be done by one or more of the following methods:

- visual external examination
- comparing of readouts from different indicators
- consideration of readouts with regard to the actual cargo and/or actual conditions
- examination of maintenance records with reference to the cargo plant instrumentation maintenance manual
- verification of the calibration status of the measuring instruments.

3.3 Fire-fighting systems in cargo area

3.3.1 The survey is to include the examination of CO₂ fixed fire-fighting systems fitted on board for the protection of the cargo pump room and cargo compressor room in accordance with the relevant requirements given in Ch 3, Sec 1, [3.4].

3.4 Inert gas/air drying systems

3.4.1 The survey is to include:

- the examinations and tests as provided for the annual survey of inert gas systems of oil tankers, given in Sec 3, [3.4]
- confirmation that arrangements are made for sufficient inert gas to be carried to compensate for normal losses and that means are provided for monitoring the spaces
- confirmation that the means for prevention of backflow of cargo vapour to gas-safe spaces are in satisfactory operating condition
- confirmation that any air drying system and any inter-barrier and hold space purging inert gas system are satisfactory.

4 Intermediate survey - Hull items

4.1 General

4.1.1

In addition to the requirements of ordinary surveys the class intermediate survey is to include the requirements given in this item [4].

4.1.2

The aim of the intermediate survey is to supplement the ordinary survey by testing cargo handling installations with related automatic control, alarm and safety systems for correct functioning.

4.1.3 The intermediate survey is preferably to be carried out with the ship in a gas-free condition. In fact, the extent of the testing required for the intermediate survey will nor-

may be such that the survey cannot be carried out during a loading or discharging operation.

4.2 Weather decks and cargo handling rooms

4.2.1 The survey is to include:

- examination, as far as applicable, of cargo and process, liquid nitrogen (if any), ballast, bunker, stripping and vent piping systems as well as vent masts and headers. If upon examination there is any doubt as to the condition of the piping, pressure testing, thickness measurement or both may be required
- examination of vent line drainage arrangements
- confirmation that cargo pipes and independent cargo tanks, where applicable, are electrically bonded to the hull.

4.3 Cargo tanks and water ballast tanks

4.3.1 The requirements for survey of cargo and water ballast tanks given in Tab 1 are to be complied with.

5 Intermediate survey - Cargo machinery items

5.1 General

5.1.1

In addition to the requirements of ordinary surveys the class intermediate survey is to include the requirements given in [5.2] to [5.4].

5.2 Cargo area, cargo pump rooms and cargo compressor rooms

5.2.1 Electrical equipment and cables in dangerous zones such as cargo pump rooms, cargo compressor rooms and spaces adjacent to and areas above cargo tanks are to be examined as far as practicable and tested with particular regard to:

- protective earthing (spot check)
- integrity of flameproof enclosures
- damage of outer sheath of cables
- function test of pressurised equipment and associated alarms
- test of systems for de-energising non-certified safe electrical equipment located in spaces protected by airlocks, such as electric motor rooms, cargo control rooms, etc.

5.2.2 The electrical insulation resistance of the electrical equipment and circuits in dangerous zones is to be measured. These measurements are only to be effected when the ship is in a gas-free or inerted condition and are to be carried out within an acceptable time period. Where a proper

record of testing is maintained, consideration may be given to accepting recent readings by the ship's personnel.

5.2.3 In addition to the requirements of [5.2.1] and [5.2.2], the survey also consists of:

- confirmation that the cargo heating/cooling system is in satisfactory condition
- confirmation that the heating system of the hull structure is in satisfactory working condition
- general examination and test of leakage detection systems in interbarrier and hold spaces.

5.3 Instrumentation and safety devices

5.3.1 The survey is to include:

- examination of the installed pressure gauging systems on cargo discharge lines, cargo tanks, holds and insulation spaces and associated alarms
- examination of the cargo tank liquid level gauges and high level alarms as well as automatic shut-off systems
- examination of the temperature indicating equipment of the cargo containment system and associated alarms
- test of the above-mentioned instrumentation by changing pressure, level and temperature as applicable and comparing with test instruments. Simulated tests may be accepted for sensors which are not accessible or located within cargo tanks or inerted hold spaces. The test is to include alarm and safety functions
- examination, as far as practicable, of the piping of the gas detection system for corrosion and damage. The integrity of the suction lines between suction points and analysing units is to be verified as far as possible
- calibration of gas detectors or verification thereof with sample gases
- confirmation of the availability and suitability of the portable gas detection equipment and instruments for measuring oxygen levels
- test of the manually operated emergency shutdown system (without flow in the pipelines) to verify that the system will cause the cargo pumps and compressors to stop.

5.3.2 The instrumentation and safety systems for burning cargo as fuel are to be examined in accordance with the requirements indicated in [5.3.1].

5.4 Inert gas system

5.4.1 For ships over 10 years old at the time of the intermediate survey due date, if an inert gas system such as that installed on board oil tankers is fitted, the requirements given in Sec 3, [5.3] for intermediate survey of oil tankers are to be complied with.

5.4.2 In the case of low temperature liquid nitrogen storage, the plant and its associated arrangements for protecting the hull structure against liquid nitrogen leakage are to be examined.

6 Renewal survey - Hull items

6.1 Scope of Survey

6.1.1

In addition to the requirements of ordinary surveys, the class renewal survey is to include examination, tests and checks of sufficient extent to ensure that the hull and related piping are in satisfactory condition for the new period of class to be assigned, subject to proper maintenance and operation and to periodical surveys being carried out at the due dates.

6.1.2 All cargo tanks, water ballast tanks, including double bottom tanks, pump rooms, pipe tunnels, cofferdams and void spaces bounding cargo tanks, decks and outer hull are to be examined, and this examination is to be supplemented by thickness measurement and testing as deemed necessary, to ensure that the structural integrity remains effective. The examination is to be directed at discovering substantial corrosion, significant deformation, fractures, damage or other structural deterioration and, if deemed necessary by the Surveyor, may include suitable non-destructive inspection.

6.1.3

Where provided, the condition of the coating or corrosion prevention system of ballast tanks is to be examined.

For water ballast spaces other than double bottom tanks, where a protective coating is found in poor condition, as defined in Ch 2, Sec 2, [2.2.11], and is not renewed, where soft coating has been applied, or where a protective coating has never been applied, i.e. either at the time of construction or thereafter, maintenance of class is to be subject to the spaces in question being internally examined and thickness measurement carried out as considered necessary at ordinary surveys.

For water ballast double bottom tanks, where such breakdown of coating is found and is not renewed, where soft coating has been applied or where a protective coating has never been applied, i.e. either at the time of construction or thereafter, maintenance of class may be subject to the tanks in question being internally examined and thickness measurement carried out as considered necessary at ordinary surveys.

6.2 Overall surveys

6.2.1 Each class renewal survey is to include an overall survey of all tanks and spaces. For fuel oil tanks, however, the requirements given in Ch 3, Sec 3, Tab 1 are to be complied with.

6.2.2 The Surveyor may extend the overall survey as deemed necessary, taking into account the maintenance of the tanks under survey, the condition of the corrosion prevention system and also in the following cases:

- in particular, in tanks having structural arrangements or details which have suffered defects in similar tanks, or on similar ships according to available information
- in tanks having structures approved with reduced scantlings.

6.3 Thickness measurements

6.3.1 The minimum requirements for thickness measurements at class renewal surveys are given in Ch. 3, Sec. 3, Tab. 2.

6.3.2 The Surveyor may extend the thickness measurements as deemed necessary. Where substantial corrosion, as defined in Ch 2, Sec 2, [2.2.7], is found, the extent of thickness measurements is to be increased to the satisfaction of the Surveyor.

6.3.3 For areas in spaces where coatings are found to be in good condition as defined in Ch 2, Sec 2, [2.2.11], the extent of thickness measurements according to Ch. 3, Sec. 3, Tab. 2 may be specially considered by ^{Tasneef}

6.4 Tank testing

6.4.1 All boundaries of water ballast tanks are to pressure tested. For fuel oil tanks, only representative tanks are to be pressure tested. For cargo tanks, refer to [6.5].

6.4.2 The Surveyor may extend the tank testing as deemed necessary.

6.4.3 Water ballast tanks and fuel oil tanks are to be tested with a head of liquid to the top of air pipes.

6.5 Cargo tank structure

6.5.1 All cargo tanks are to be cleaned and examined internally.

6.5.2 When accessible, the outer surface of uninsulated cargo tanks or the outer surface of cargo tank insulation together with any vapour or protective barrier is to be examined. Special attention is to be given to the tank and insulation in way of chocks, supports and keys. Removal of insulation, in part or entirely, may be required in order to verify the condition of the tank or the insulation itself if deemed necessary by the Surveyor.

Where the arrangement is such that the insulation cannot be examined entirely, the surrounding structures of wing tanks, double bottom tanks and cofferdams are to be examined for cold spots when the cargo tanks are in the cold condition, unless voyage records together with the instrumentation give sufficient evidence of the integrity of the insulation system.

6.5.3 Thickness measurements may be required if deemed necessary by the Surveyor.

Close-up surveys are to be carried out in independent cargo tanks at those areas where corrosion may develop.

6.5.4 Non-destructive testing is to supplement cargo tank inspection with special attention to be given to the integrity of the main structural members, tank shell and highly stressed parts, including welded connections as deemed necessary by the Surveyor.

The following items are, inter alia, considered highly stressed areas:

- cargo tank supports and anti-rolling or anti-pitching devices
- web frames or stiffening rings
- Y-connection of shell plates and longitudinal bulkhead of bilobe tanks
- swash bulkhead boundaries
- dome and sump connections to the shell plating
- foundations for pumps, towers, ladders, etc
- pipe connections.

Where the tanks are to be hydraulically tested in accordance with [6.5.8], non-destructive testing is to be carried out after the hydraulic testing.

6.5.5 For independent tanks designed using model tests, refined analytical tools and analysis methods to determine stress levels, fatigue life and crack propagation characteristics the extent of non-destructive testing is to be as given in a program specially prepared for the cargo tank design.

6.5.6 The tightness of all cargo tanks is to be verified by an appropriate procedure. Provided that the effectiveness of the ship's gas detection equipment has been confirmed, it will be acceptable to use this equipment for the tightness test of independent tanks below deck.

6.5.7 Where the results of the examinations dealt with in [6.5.1] to [6.5.6] or the examination of the voyage records raise doubts as to the structural integrity of a cargo tank, a hydraulic or hydropneumatic test is to be carried out.

For integral tanks and for independent tanks, the test pressure is not to be less than the MARVS.

For independent tanks, the test pressure is not to be less than 1,25 times the MARVS.

6.5.8 When the ship is 16 years old, at every alternate class renewal survey, independent cargo tanks for the carriage of pressurized liquefied gas are to be either:

- hydraulically tested to 1,25 times the MARVS, and thereafter non-destructively tested in accordance with [6.5.4], or
- subjected to thorough non-destructive testing in accordance with a program specially prepared for the tank design.

If a special program of non-destructive testing does not exist, special attention is to be given to the detection of surface cracks in welded connections in highly stressed areas as listed in [6.5.4].

At least 10% of the length of the welded connections in each of the above-mentioned areas is to be tested. This testing is to be carried out internally and externally, as applicable. Insulation is to be removed as necessary for the required non-destructive testing.

Where hold space atmosphere control is permanently maintained, the scope of external examination of the tanks and their supports may be reduced at the Surveyor's discretion.

6.5.9 As far as accessible, hold spaces and hull insulation (if provided), secondary barriers and tank supporting structures are to be visually examined. The secondary barrier of tanks is to be checked for its effectiveness by means of a pressure/vacuum test, a visual examination or any other acceptable method.

6.5.10 For membrane, semi-membrane and internal insulation tank systems, inspection or testing is to be carried out in accordance with a program specially prepared for the tank system concerned.

6.5.11 All gas-tight bulkheads are to be examined and the effectiveness of gas-tight shaft sealing is to be verified.

6.5.12 It is to be verified that independent cargo tanks are electrically bonded to the hull.

6.5.13 The pressure relief valves for the cargo tanks are to be opened for examination, adjusted, function tested and sealed. If the cargo tanks are equipped with relief valves with non-metallic membranes in the main or pilot valves, these non-metallic membranes are to be replaced. Where a proper record of continuous overhaul and re-testing of individually identifiable relief valves is maintained, consideration may be given to acceptance on the basis of opening, internal examination and testing of a representative sample of valves, including each size and type of liquefied gas or vapour relief valves in use, provided there is evidence in the log-book that the remaining valves have been overhauled and tested since crediting of the previous class renewal survey.

6.6 Weather decks and cargo handling rooms

6.6.1 Piping for cargo and process, liquid nitrogen (if any), ballast, stripping and venting systems is to be examined to the Surveyor's satisfaction. Insulation is to be removed as deemed necessary to ascertain the condition of the pipes. If the visual examination raises doubts as to the integrity of the pipelines, a pressure test at 1,25 times the MARVS for the pipeline is to be carried out. After reassembly the complete piping systems are to be tested for leaks.

It is to be verified that cargo piping systems are electrically bonded to the hull.

6.6.2 The pressure relief valves on cargo piping are to be function tested. A random selection of valves is to be opened for examination and adjusted.

6.6.3 All cargo pump room, compressor room and control room boundaries are to be generally examined. Gas-tight shaft sealing devices are to be examined. The bottom of cargo pump rooms and cargo compressor rooms is to be presented clean for the examination of stripping devices and gutters.

6.6.4 Pressure/vacuum relief valves, rupture discs and other pressure relief devices for interbarrier spaces and/or hold spaces are to be examined and, if necessary, opened and tested in accordance with their design.

Vent line drainage arrangements are to be examined.

7 Renewal survey - Cargo machinery items

7.1 Cargo area, cargo pump rooms, cargo compressor rooms

7.1.1 Ballast and stripping pumps are to be internally examined and prime movers checked. A working test is to be carried out.

Maintenance records of cargo pumps are to be made available to the Surveyor.

7.1.2 Electrical equipment and cables in dangerous zones such as cargo pump rooms, cargo compressor rooms and spaces adjacent to and areas above cargo tanks are to be examined as far as practicable and tested with particular regard to:

- protecting earthing (spot check)
- integrity of enclosures
- damage of outer sheath of cables
- function testing of pressurised equipment and associated alarms
- testing of systems for de-energising non-certified safe electrical equipment located in spaces protected by airlocks, such as electric motor rooms, cargo control rooms etc.

7.1.3 The electrical insulation resistance of the electrical equipment and circuits in dangerous zones is to be measured. These measurements are only to be effected when the ship is in a gas-free or inerted condition. Where a proper record of testing is maintained, consideration may be given to accepting recent readings by the ship's personnel.

Reference is also to be made to IACS Recommendation No. 35 - Inspection and maintenance of electrical equipment installed in hazardous areas.

7.1.4 When there is a reliquefaction or refrigeration plant, and/or arrangements for the use of cargo as fuel, the corresponding machinery and equipment, such as cargo pumps, compressors, heat exchangers, condensers and process

pressure vessels, are to be surveyed to the same extent as required for similar equipment on board oil tankers at the class renewal survey (refer to Sec 3).

7.1.5 In addition to the requirements of [7.1.1] to [7.1.4], the survey also consists of:

- confirmation that spares are provided for cargo area mechanical ventilation fans
- confirmation that the installation for heating the hull structure is in satisfactory working condition
- general examination and testing of leakage detection systems in interbarrier spaces and hold spaces
- examination of the gas detection piping system for corrosion or damage; checking, as far as possible, of the integrity of suction lines between suction points and analysing units
- examination and tests of systems for the removal of water from interbarrier spaces and hold spaces
- examination of portable equipment, such as hoses and spool pieces used for segregation of piping systems for cargo, inert gas and bilge pumping.

7.2 Fire-fighting systems in cargo area

7.2.1 The survey is to include the examination of CO₂ fixed fire-fighting system fitted on board for the protection of the cargo pump room and cargo compressor room in accordance with the relevant requirements given in Ch 3, Sec 3, [3.8].

7.3 Inert gas system

7.3.1 If an inert gas system such as that installed on board oil tankers is fitted, the requirements given in Sec 2, [7.3] are to be complied with.

7.3.2 In the case of low temperature liquid nitrogen storage, the plant and its associated arrangements for protecting the hull structure against liquid nitrogen leakage are to be examined.

Table 1 : Intermediate survey of water ballast tanks for liquefied gas carriers

Age of ship (in years at time of intermediate survey)		
age ≤ 10	10 < age ≤ 20	Age > 20
Overall survey of representative water ballast tanks, selected by the attending Surveyor	Overall survey of at least two ballast tanks, selected by the attending Surveyor	Overall survey of all water ballast tanks
<p>Note 1: Where poor coating condition, corrosion or other defects are found in water ballast tanks or where a protective coating has never been applied, i.e. either at the time of construction or thereafter, the examination is to be extended to other ballast tanks of the same type.</p>		

SECTION 5

RO-RO CARGO SHIPS, PASSENGER SHIPS, RO-RO PASSENGER SHIPS

1 General

1.1

1.1.1 The requirements of this Section are applicable after construction to all self-propelled ships which have been assigned one of the following service notations:

- **ro-ro cargo ship**
- **passenger ship**
- **ro-ro passenger ship.**

1.1.2 These requirements are additional to those laid down in Chapter 3, according to the relevant surveys.

2 Ro-ro cargo ships - Ordinary survey

2.1 Shell and inner doors

2.1.1 The requirements of this item apply to all shell and inner doors fitted on these ships.

2.1.2 For the scope of survey of shell and inner doors, the following definitions are applicable:

- **securing device:** a device used to keep the door closed by preventing it from rotating about its hinges
- **supporting device:** a device used to transmit external or internal loads from the door to a securing device and from the securing device to the ship's structure, or a device other than a securing device, such as a hinge, stopper or other fixed device, that transmits loads from the door to the ship's structure
- **locking device:** a device that locks a securing device in the closed position.

2.1.3 It is to be checked that the operating procedures for closing the shell and inner doors are kept on board and posted at appropriate places.

When required, the Operating and Maintenance Manual is also to be checked for the verification of its approval and of any modification, reported repairs and proper endorsement by operating personnel.

2.1.4 The structural arrangements as well as welding are to be examined, including:

- plating, primary structure and secondary stiffeners
- hinging arms, hinges and bearings, thrust bearings
- hull and door side supports of securing, supporting and locking devices
- shell plating surrounding the openings and the securing, supporting and locking devices.

Hinge, bearing and thrust bearing clearances are to be measured when no dismantling is necessary for the measurement, or when the function tests detailed below are not satisfactory.

2.1.5 A close visual inspection of securing, supporting and locking devices, including their weld connections, is to be carried out and clearances are to be measured as required.

Non-destructive tests and/or thickness measurements may be required by the Surveyor after visual examination or in cases where cracks or deformations have been found.

2.1.6 A close visual inspection of sealing arrangements (packing material, rubber gaskets, packing retaining bars or channels) is to be carried out. For the tightness hose test, refer to [2.1.8].

2.1.7 The drainage arrangements including bilge wells, drain pipes and non-return valves are to be visually examined. A test of the bilge system between the inner and outer doors and that of the vehicle deck is to be carried out.

2.1.8 Function tests are to be carried out as follows, according to the required and/or existing equipment on board:

- a) doors are to be examined during a complete opening and closing operation; during this operation, the proper working of hinging arms and hinges, proper engagement of the thrust bearings and proper working of devices for locking the door in open position are to be checked
- b) securing, supporting and locking devices are to be examined during a complete opening and closing operation; the following items are to be checked:
 - opening/closing system and securing/locking devices are interlocked in such a way that they can only operate in proper sequence
 - mechanical lock of the securing devices
 - the securing devices remain locked in the event of loss of hydraulic fluid, if they are of hydraulic type

- c) indicators of open/closed position of doors and of securing/locking devices at remote control stations are to be checked; other safety devices such as isolation of securing/locking hydraulic system from other hydraulic systems, access to operating panels, notice plates and warning indicator lights are to be checked
- d) a tightness hose test or equivalent of sealing arrangements is to be carried out
- e) a working test of the indicator system is to be carried out, including checking of:
 - visual indicators and audible alarms on the navigation bridge and operating panel
 - lamp test function, fail-safe performance, power supply for indicator system
 - proper condition of sensors and their protection from water, ice formation and mechanical damage
- f) a working test of the water leakage detection system for inner doors and for the area between the bow door and the inner door (as applicable) is to be carried out and the proper function of audible alarms on the navigation bridge and the engine control room panel (as applicable) is to be ascertained
- g) the television surveillance system is to be verified with proper indication on the navigation bridge and engine control room monitors
- h) electrical equipment for opening, closing and securing the doors is to be examined.

2.2 Internal platforms and ramps

2.2.1

The ordinary survey of internal movable platforms and ramps (excluding those considered as inner doors and covered in [2.1]) and related equipment consists of:

- a general examination of the installation, particular attention being paid to the condition of steel cables
- confirmation of the proper operation of platforms/ramps and of mechanical stops and locks
- checking, as far as practicable, of the alarms and safety devices.

2.3 Fire protection, detection and extinction

2.3.1

Within the scope of survey of fire protection, detection and extinction arrangements as required for the ordinary survey of all ships in Ch 3, Sec 1, [3.4], attention is to be given to the particular arrangements related to ro-ro cargo spaces, such as:

- fire detection systems and alarms
- CO₂ fixed fire-extinguishing arrangements
- electrical equipment of a safe type.

3 Ro-ro cargo ships - Class renewal survey

3.1 Shell and inner doors

3.1.1 A close visual inspection of structural arrangements is to be carried out, supplemented by non-destructive tests and/or thickness measurements, as deemed necessary by the Surveyor.

3.1.2 The close visual inspection of securing, supporting and locking devices, as required for the annual survey, is to be supplemented by non-destructive tests and/or thickness measurements.

3.1.3 Clearances of hinges, bearings and thrust bearings are to be measured. Dismantling may be required as deemed necessary by the Surveyor.

3.1.4 Non-return valves of drainage arrangements are to be checked after dismantling.

3.2 Internal platforms and ramps

3.2.1 The condition of pulleys, axles, cables and structure of the platforms and ramps is to be checked.

Electric motors and/or hydraulically operated equipment are to be surveyed according to the scope detailed in Ch 3, Sec 3, [3] for the class renewal survey of machinery installations.

3.3 Fire protection, detection and extinction

3.3.1 Within the scope of survey of fire protection, detection and extinction arrangements as required for the class renewal survey of all ships in Ch 3, Sec 3, [3.8], attention is to be given to the particular arrangements related to ro-ro cargo spaces, such as those indicated in [2.3.1].

4 Passenger ships - Ordinary survey

4.1 Watertight bulkheads

4.1.1 The survey of watertight bulkheads and arrangements consists of:

- examination, as far as practicable, of collision and watertight bulkheads, and confirmation that their watertight integrity has not been impaired
- checking the diagram provided on the navigation bridge showing the location of the watertight doors and related indicators for their open/closed position
- testing operation of local and remote control (from the navigation bridge) of the watertight doors, and in particular, operation from each side of the bulkhead of audible alarms or visual signals and control handles, as required or fitted
- confirmation of operation of watertight doors in the event of failure of main and emergency sources of power
- confirmation that notices are affixed at appropriate locations.

4.2 Openings in shell plating

4.2.1 (1/1/2022)

The survey consists of:

- examination of the arrangements for closing sidescuttles and their deadlights, as well as scuppers, sanitary discharges and similar openings and other inlets and discharges in the shell plating below the margin line
- confirmation that valves for closing the main and auxiliary water inlets and discharges in the machinery spaces are readily accessible, and that indicators showing the status of the valves are provided, as required or fitted
- confirmation that gangway access and cargo ports fitted below the margin line may be effectively closed and that the inboard ends of any ash or rubbish chutes are fitted with an effective cover.

4.3 Lightweight survey

4.3.1 It is to be verified that the last lightweight survey was carried out not more than eight years ago (refer to Pt E, Ch 11, Sec 3, [1.1.2]).

4.4 Miscellaneous

4.4.1 It is to be verified that the emergency escape routes from passenger and crew spaces, including related stairways and ladders, are kept clear.

5 Passenger ships - Class renewal survey

5.1

5.1.1 It is to be verified that the last lightweight survey was carried out not more than eight years ago.

6 Ro-ro passenger ships - Ordinary and class renewal surveys

6.1

6.1.1

The scope of the ordinary survey and class renewal survey of **ro-ro passenger ship** is to include the scope of surveys required for the service notations **ro-ro cargo ship** and **passenger ship**, as detailed in [2] and [4] for ordinary surveys and [3] and [5] for class renewal surveys.

6.1.2

In addition to [6.1.1] above, for both ordinary surveys and class renewal surveys, the condition of means of escape as well as of fire protection, detection and extinction in special category spaces is to be checked.

SECTION 6

OTHER SERVICE NOTATIONS

1 General

1.1

1.1.1 The requirements of this Section are applicable to ships to be assigned one of the following service notations, and are given in the Articles specified below:

- dredging units, i.e. ships with the service notations **dredger, hopper dredger, hopper unit, split hopper unit, split hopper dredger**, in [2]
- **tug**, in [3].

1.1.2 These requirements are additional to those given in Chapter 3, according to the relevant surveys.

2 Dredging units

2.1 Ordinary survey

2.1.1 The survey is to include the following items, as far as required or fitted, according to the service notation of the ship:

- for **split hopper unit, split hopper dredger, visual examination**, as far as practicable, of superstructure hinges and blocks, deck hinges, hydraulic jacks and associated piping systems and alarms
- for **dredger, hopper dredger, split hopper dredger**:
 - visual examination, as far as practicable, of attachments of suction piping and lifting systems to the structure and external examination of piping in dredging machinery spaces for absence of corrosion and leakage
 - checking of the condition of the dredging machinery space and related equipment with regard to electric shocks, protection from rotating machinery, fire and explosion hazards.

2.2 Class renewal survey

2.2.1 The survey is to include the following items, as far as required or fitted, according to the service notation of the ship:

- for **hopper dredger, hopper unit**, visual examination of hopper bottom doors or valves and accessories, such as hinges, actuating rods, hydraulic systems, with dismantling as deemed necessary by the Surveyor
- for **split hopper unit, split hopper dredger**, visual examination, as far as practicable, of superstructure hinges

and blocks, deck hinges, hydraulic jacks and associated piping systems and alarms, with dismantling and/or further checks as deemed necessary by the Surveyor

- for **dredger, hopper dredger, split hopper dredger**:
 - visual examination, as far as practicable, of attachments of suction piping and lifting systems to the structure and external examination of piping in dredging machinery spaces for absence of corrosion and leakage
 - checking of the condition of the dredging machinery space and related equipment with regard to electric shocks, protection from rotating machinery, fire and explosion hazards.

3 Tug and pusher

3.1 Ordinary survey

3.1.1 The survey is to include a general external examination of the towing hook or towing winch, as fitted, and unhooking device, as far as practicable.

3.1.2 For **tug - barge combined**, an examination of the accessible parts of the connection system is to be carried out.

3.2 Class renewal survey

3.2.1 The survey is to include:

- checking of the condition of the connection of the towing hook or towing winch to the structure, including related reinforcements of the structure
- checking of the external condition of the towing hook or towing winch; when applicable, a no-load test of the unhooking device is to be carried out.

3.2.2 In addition to [6.2.1] above, for salvage tugs, the survey is to include:

- a check and working test of specific equipment as required in Pt E
- checking of the satisfactory condition of the towing line(s).

3.2.3 For **tug - barge combined**, a visual examination of components of the connection system is to be carried out, completed by thickness measurements and non-destructive tests as deemed necessary by the Surveyor. A connection/disconnection test is to be carried out, including a check of related remote control, safety and alarm devices.

Part A
Classification and Surveys

Chapter 5

ADDITIONAL CLASS NOTATIONS

SECTION 1 GENERAL

SECTION 2 MONITORING EQUIPMENT

SECTION 1

GENERAL

1 General

1.1

1.1.1 The purpose of this Chapter is to give details on the scope of surveys of specific equipment and systems fitted on board the ship, which are covered by an additional class notation. Unless otherwise specified in Ch 1, Sec 2, [6], the scope of these surveys provides the requirements to be complied with for the maintenance of the relevant additional class notation.

1.1.2

These specific requirements are additional to those laid down in Chapter 3 and Chapter 4. These surveys are to be carried out at intervals as described in Ch 2, Sec 2, as far as possible concurrently with the surveys of the same type, i.e. ordinary, intermediate or class renewal survey.

1.1.3 The equipment and systems are also to be submitted to occasional survey whenever one of the cases indicated in Ch 2, Sec 2, [6] occurs.

1.1.4

Where specific requirements are given in this Chapter for the class renewal survey, they are additional to the applicable requirements for the ordinary survey.

1.1.5 For the assignment of the additional class notations, ships are to be submitted to an admission to class survey as described in Ch 2, Sec 1, [2] and Ch 2, Sec 1, [3] for new and existing installations, respectively, as applicable.

2 Additional class notations subject to additional surveys

2.1

2.1.1 The specific requirements detailed in this Chapter are linked to the additional class notation(s) assigned to the ship. Where a ship has more than one additional class notation, the specific requirements linked to each additional class notation are applicable as long as they are not contradictory.

SECTION 2

MONITORING EQUIPMENT

1 General

1.1 Application

1.1.1 The requirements of this Section apply to ships which have been assigned the following additional class notation related to hull and tailshaft monitoring equipment, as described in Ch 1, Sec 2, [6]:

MON-SHAFT

1.1.2 When the records of the tailshaft bearing temperature readings are checked and doubts arise, the Surveyor may require verification of the accuracy of the gauging devices.