

RUSSIAN MARITIME REGISTER OF SHIPPING

RULES

**FOR TECHNICAL SUPERVISION
DURING CONSTRUCTION OF SHIPS
AND MANUFACTURE OF MATERIALS
AND PRODUCTS FOR SHIPS**

Volume 1

Part I

GENERAL REGULATIONS FOR TECHNICAL SUPERVISION

Part II

TECHNICAL DOCUMENTATION



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Rules for Technical Supervision During Construction of Ships and Manufacture of Materials and Products for Ships have been approved in compliance with the established approval procedure and come into force since 1 October 2007.

The present edition has been prepared on the basis of the latest edition of the Rules for Technical Supervision During Construction of Ships and Manufacture of Materials and Products for Ships (2005) taking into account the additions and amendments contained in Notice (2006) as well as those prepared directly before publication of the Rules.

The Rules are published in three volumes containing the following parts:

Volume 1 – Part I "General Regulations for Technical Supervision", Part II "Technical Documentation";

Volume 2 – Part III "Technical Supervision During Manufacture of Materials", Part IV "Technical Supervision During Manufacture of Products";

Volume 3 – Part V "Technical Supervision During Construction of Ships".

On the entry into force of these Rules the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships (2005) become void.

The present edition of the Rules, as compared with the last one (2005), includes the following amendments and additions. The words “Register Location” and “RS Regional Location” over the whole text of the Rules have been replaced by the words “RS Branch Office”.

PART I. GENERAL REGULATIONS FOR TECHNICAL SUPERVISION

1. Section 1: the term “Date of ship construction” has been supplemented with: “For the purposes of application of the international conventions requirements, the date is set according to the international conventions definitions.”; the term “RS requirements” has been supplemented with the following text inserted between the words “(IMO)” and “and additional requirements.”: “, governments having granted RS the relevant authorization”;

some abbreviations have been amended including those associated with Annex VI of MARPOL 73/78.

2. Section 3: amendments have been made including those on occasional surveys of recognized firms and on documents issued for engines in accordance with Annex VI of MARPOL 73/78.

3. Section 4: the procedure has been specified for technical supervision during manufacture of materials and products in cases when an applicant (firm) is not a products manufacturer;

the procedure has been specified for concluding the Agreement on Technical Supervision (COH), its period of validity, procedure and dates for extension;

for the material or product supplied with the copy of the Type Approval Certificate (CTO), the manufacturer’s survey procedure has been specified and the requirement to deliver the material or product with the manufacturer’s document, containing the data below, has been introduced:

name, type and serial number of the item;

name and address of the manufacturer;

address of the manufacturing location;

name of technical documentation for an item and date of its RS approval;

name of the document with the data on item surveys and tests carried out by manufacturer;

number, date of issue and period of validity for CTO;

firm’s statement on conformity of the item to the approved type specified in CTO;

signature of the manufacturer’s authorized person.

4. Section 5: the name of the document issued for engines in accordance with Annex VI of MARPOL 73/78 has been amended.

5. Section 6: the procedure has been specified for taking into account the results of type tests carried out by another classification body without RS participation;

the time period of 2,5 years has been set for confirmation of the Welding Procedure Approval Test Certificate (COTIIC).

6. Section 8: Chapter 8.1: codes for the kinds of activity to be recognized according to international conventions have been supplemented with the letters “MK”;

names of the kinds of activity “Thickness measurements on ships” and “In-water surveys” have been supplemented with “under supervision of RS Surveyor”;

new kinds of activity have been added:

annual testing of EPIRBs of the satellite system COSPAS-SARSAT;

shore-based maintenance of EPIRBs of the satellite system COSPAS-SARSAT;

Chapter 8.3: for the firms that perform activity of radio and navigational equipment, the special requirements have been introduced on availability of:

agreements with equipment manufacturers which authorize these latter to carry out certain

kinds of activity and establish the procedure for supply of spare parts for the firm;

documents on firm personnel’s training by equipment manufacturer for performance of certain kinds of activity;

for the firms, carrying out the survey and maintenance of fire-fighting equipment, systems and outfit, as well as personal breathing apparatus, the special requirements have been introduced on availability of:

valid documents authorizing maintenance of fire-fighting equipment, systems and outfit issued by the state bodies, which are competent in fire safety, in compliance with the legislation of the firm’s country of incorporation (if any);

documents specified in Section 4.3, Part IV “Technical Supervision During Manufacture of Products”, as well as the recognized international and/or national standards establishing the technical requirements and methods for testing technical supervision items, at the firm.

7. Section 9: the following has been separated as individual kinds of activity:
fire tests of products and materials;
electrical measurements and tests;
climatic tests and EMC tests;
tests and periodical checks of foam concentrates;
tests of fire-fighting systems and fire-fighting outfit;
the special requirements have been introduced for testing laboratories carrying out dye penetrant, radiographic, ultrasonic, magnetic particle examinations of welds quality (code 21001700);
the special requirements have been introduced for testing laboratories carrying out fire tests of products and materials (code 21001200), tests and periodical checks of foam concentrates (code 21002100), as well as tests of fire-fighting systems and fire-fighting outfit (code 21002600).

8. Section 10: Chapter 10.1: reference to 1.3.1.3, Part X “Boilers, Heat Exchangers and Pressure Vessels” of the Rules for the Classification and Construction of Sea-Going Ships has been added which makes mandatory to recognize the manufacturers of I and II class boilers and heat exchangers.

9. Section 11: the text of Chapter 11.1 “General” has been amended due to the introduction of the new kind of activity: “Design”.

10. Section 13: the misprints have been eliminated, and the paragraph on the shipyard’s duty to submit to the Register the list or copies of RS certificates issued for technical supervision items for a given ship prior to completion of its construction has been added.

11. APPENDIX 1: the text and Table have been amended in compliance with Annex VI of MARPOL 73/78 and with due regard for the results of the work carried out following RS Order No. 47 dated 30 June 2005 “On improvement of RS services in shipbuilding”:

unjustified duplication of documents issued for materials and products has been eliminated;
overestimated and unjustified requirements for materials and products have been reduced;
names of supervision items have been brought into accord with those specified in international conventions and the RS Rules;

the codes of supervision items being subject to the international convention requirements have been picked out.

12. Amendments and additions have been inserted in the following sections of the RS Nomenclature:

Life-saving appliances;
Arrangements, equipment, outfit;
Signal means;
Radio equipment;
Navigational equipment;
Fire protection;
Machinery installations;
Systems and piping;
Machinery;
Boilers, heat exchangers and pressure vessels;
Electrical equipment;
Refrigerating plants;
Refrigerating units and machinery;
Refrigerant pressure vessels;
Piping and fittings;
Ropes;
Cargo handling gear;
Automation;
Nuclear ships and nuclear support vessels;
Equipment and arrangements for the prevention of pollution from ships.

13. APPENDIX 2: Section 5: the manufacturer’s name and trade mark have been added to the marking of lifejackets, immersion suits, antiexposure suits and thermal protective means.

PART II. TECHNICAL DOCUMENTATION

1. Section 3, paragraph 3.3 has been supplemented with the provision which makes possible to submit technical documentation in an electronic form what is already the case in the RS practice.

2. Section 8, paragraph 8.10 has been supplemented with the instruction that in case of the ship's construction supervised by another RS Branch Office, one set of the detailed design documentation together with the conclusion letter shall be sent to this Branch Office.

3. Section 9: paragraph 9.1 has been completely renewed with the period of validity of Register's approval for ship's technical documentation (technical or technical detailed documentation) limited by the period of contract validity for construction of the ship or series of sister ships;

paragraph 9.3: the period of validity of Register's approval for technical documentation for materials and products at the type approval, including specifications, has been increased from 5 to 6 years;

paragraphs 9.5 and 9.6 worded as in 10.1 and 10.2, respectively, have been added while the two latter have been deleted in Section 10.

4. Section 12: amendments and additions associated with the implementation of IACS Unified Requirement UR L5 have been introduced.

5. APPENDIX 1: the list has been supplemented with the document "Operating manual on water level detection system" (implementation of Circular letter No. 010-2.4-22 dated 7 April 2004).

6. Section 10: the list of technical documentation reflecting the provisions of the new IACS Unified Interpretation UI SC 181 version on the navigating bridge design has been supplemented and modified.

7. APPENDIX 2 has been deleted as the Final documentation on a nuclear ship, floating facility and nuclear support vessel is listed in Appendix to Section 2 "Technical Documentation" of the Guidelines for Technical Supervision during Construction of Nuclear Ships, Floating Facilities and Nuclear Support Vessels and Manufacture of Materials and Products (2006).

CONTENTS

PART I. GENERAL REGULATIONS FOR TECHNICAL SUPERVISION	PART II. TECHNICAL DOCUMENTATION
1 Terms, definitions, abbreviations 7	1 Application. 63
2 General. 10	2 Definitions and explanations 63
3 Services rendered (work carried out) in technical supervision during manufacture of materials and products. Documents issued 12	3 General 63
4 Requests, contracts and agreements on technical supervision 13	4 Technical documentation on ships 65
5 Technical supervision during manufacture of materials and products 14	5 Technical documentation on products 65
6 Approval of type materials, products, production processes and software 15	6 Technical documentation on materials 66
7 General requirements for firms 16	7 Normative documents. 66
8 Recognition of service suppliers 17	8 Preparation of results of technical documentation review. 67
9 Recognition of testing laboratories 19	9 Duration of validity of technical documentation approval (agreement) 69
10 Recognition of manufacturers 22	10 Introduction of amendments into approved (agreed) technical documentation 70
11 Audits of firms 22	11 Final documentation on a ship to be submitted to the Register 71
12 Technical supervision at the manufacturer 23	12 Programmes for computer-aided calculations 71
13 Technical supervision at the shipyard during construction of ships 24	Appendix. List of final documentation on a ship to be submitted to the Register 77
14 Technical supervision on behalf of the Register 30	
15 Technical supervision on behalf of other classification societies 30	
Appendix 1. Nomenclature of items of the Register technical supervision 31	
Appendix 2. Instructions on branding of items of the Register technical supervision 55	

PART I. GENERAL REGULATIONS FOR TECHNICAL SUPERVISION

1 TERMS, DEFINITIONS, ABBREVIATIONS

Definitions and explanations relating to general terminology of the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships¹ are given in Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships. For the purpose of these Rules the following terms and definitions are applied.

1.1 TERMS AND DEFINITIONS

RS Head Office is the management of the Register and departments of the Head Office.

Prototype ship is a single-built ship or the first ship of the series, which is built under the Register technical supervision.

In case of ships built under the same design at different shipyards, the first ship built at each shipyard is considered to be the prototype ship.

Prototype (first lot) is a material or product (lot) used by the Register to check and confirm by means of tests and surveys that it complies with the RS requirements and may be used for the intended purpose if produced at the manufacturer concerned.

Date of ship construction is the date of the actual completion of the Register surveys required in supervision of the ship construction.

Date of ship construction for the purpose of application of the requirements of international conventions is the date in accordance with the definitions in international conventions.

Contract on technical supervision is an agreement in the written form defining rights and responsibilities of the Register and organization (firm) during technical supervision of the items of supervision.

Additional requirements are the requirements caused by the item features or its operational conditions, which are not provided for by the rules imposed by RS in writing to ensure the safety of items of technical supervision.

Under safety in this particular case is meant safe navigation of ships, fixed offshore platforms, safety of life at sea, safe carriage of goods, environmental protection.

Surveyor is an RS official authorized to perform certain types of the RS technical supervision.

RS Branch Office is a branch, district office of a branch, Regional Office, district office of a Regional office, associated company, affiliated company, district office of affiliated company, joint stock company, RS representation. RS Branch Office has Regulations of Status approved in accordance with an established procedure to define its legal status, region of its activities, its objectives and functions, as well as duties, rights and responsibilities of Head of the Branch Office.

Test is a technical operation on determination of one or more characteristics or operating parameters of an item of supervision in compliance with the established or defined procedure.

Competent organization is an organization recognized as having adequate knowledge and experience in the particular area.

Competent person is a person considered as adequately qualified to do a job in the particular area, using appropriate knowledge and experience.

Normative documents are standards, regulations, technical requirements, norms, calculation procedures, instructions, guidelines and other documents, which provide design, technical or production requirements for design, construction (manufacture), installation, testing and service of the items of the RS technical supervision.

Items of technical supervision (items of supervision) are ships and other floating facilities, fixed offshore platforms, products, materials, works, services and processes within the RS terms of reference in compliance with the current legislation and the Charter.

Approval of a material, product or process is confirmation by branding and/or the RS document of a material, product or process compliance with the RS requirements based on the positive results of their survey.

Approval (agreement) of technical documentation is confirmation by the RS stamp and/or document of compliance of technical documentation with the RS requirements based on the positive results of its review.

Type approval of a material, product or process is an approval of a material, product, process considered by RS as a representative of the particular production without attribution to the particular item of technical supervision.

¹ Hereinafter referred as "the Rules".

Approved is a term applied by RS as a result of review (expertise) of construction and production documentation on items of technical supervision if it is recognized as meeting the RS requirements.

Pilot specimen (pilot lot) is a material or a product (lot) produced in accordance with newly developed technical documentation to determine a possibility of its use for the intended purpose in compliance with the RS requirements, based on review of technical documentation and checking in the course of tests or research of structural solutions as well as combination of properties and parameters.

Organization (firm) is a legal entity of any legal form, form of ownership and affiliation, as well as a physical person involved in business not being a legal person involved in activity related to the items of supervision.

Survey is an integral part of technical supervision, including:

- checking availability of approved technical documentation on the items of technical supervision;
- checking availability of the RS documents, recognized and competent organizations or persons on the items of technical supervision;
- examinations, including (where necessary) opening-up and dismantling;
- participation in measurements and tests;
- assessment of the measurement and test results;
- drawing-up, endorsement, renewal and extension of the RS documents;
- branding and sealing (where necessary) of the item of technical supervision.

Conversion of a ship of substantial nature (major conversion) is conversion resulting in substantial changes of the ship principal characteristics or structural parameters (such as weight characteristics, gross tonnage, overall dimensions, freeboard; power output of the main propulsion installation, ice strengthening, etc.), which can cause change of the ship type, principal dimensions, passenger capacity, cargo carrying capacity, extension of the ship service life or change in the class notation. Nature of (major/minor) conversion shall be determined by the RS Head Office in each particular case.

RS rules are a code of normative technical requirements for items of technical supervision.

Recognition of a manufacturer is confirmation by the RS document of capability of a manufacturer to manufacture materials and products in compliance with the RS requirements.

Recognition of a testing laboratory is confirmation by the RS document of technical competence of a testing laboratory in conducting tests in compliance with the RS requirements.

Recognition of an organization (firm) is confirmation by the RS document of

capability of an organization (firm) to render services (carry out work) in compliance with the RS requirements.

Duly noted is a term applied by RS as a result of review (expertise) of technical documentation in the form of various calculations, descriptions, explanatory notes, research reports and test results, etc., provided the documentation is recognized as meeting the RS requirements.

Detailed (design) documentation is a set of design documents intended for construction (manufacture), checking, acceptance, delivery, service and repair of the item of supervision.

Single approval of a material, product, process is approval of a material, product, process to be used or installed on a particular item of supervision under construction or in service.

Review of technical documentation is determination of an extent of documentation compliance with the RS requirements.

Recommendations of the International Maritime Organization (IMO) are provisions of resolutions, codes and other normative documents adopted by the governments, which have authorized the Register to supervise the fulfillment of those provisions.

Certificate of conformity (Certificate) is a RS document certifying the compliance of an item of supervision with the RS requirements.

Agreed is a term applied by RS as a result of review (expertise) of standards and other normative technical documents if they are recognized as meeting the RS requirements.

Agreement on Survey is an agreement in a written form establishing interrelations between the Register and a firm, based on which technical personnel of the firm is entrusted with performance of check tests or part thereof and filling-in of certificates of conformity, which are submitted to the Register for drawing-up (affirmation) together with the test reports.

Special consideration is determination of an extent of conformity of an item of technical supervision with the additional requirements.

Technical documentation is construction and production documentation as well as the normative documents on items of technical supervision, which contain the data necessary for checking the fulfillment of the RS requirements.

Technical supervision is checking of conformity of items of supervision with the RS requirements during:

- review and approval (agreement) of technical documentation;
- survey of items of supervision at manufacture, construction, service stages, including conversion, modernization and repair.

Technical design is a kind of design documentation that contains final engineering solutions, gives full understanding of the designed item and includes the data necessary and sufficient for development of detailed design documentation.

Technical detailed design is a kind of design documentation containing the data on technical design and supplemented with the data and design documents in the extent sufficient for determination of conformity of items of supervision with the RS requirements and provision of technical supervision during manufacture of its main assemblies.

Requirements of conventions are requirements of international conventions ratified by the governments, which have authorized the Register to supervise the fulfillment of those requirements.

RS requirements are requirements of the RS rules, international conventions and agreements, recommendations of the International Maritime Organization (IMO), governments having granted RS the relevant authorization, and additional requirements.

Type production process is a production process intended for specific field and conditions of application with no reference to a particular ship or item of supervision.

Sketch design is a kind of design documentation containing basic design solutions and providing a general idea of the design and operating principles of an item of supervision and the data determining its fitness for its purpose.

1.2 ABBREVIATIONS

Register, RS — Russian Maritime Register of Shipping.

RHO — RS Head Office.

MARPOL-73/78 — International Convention for Prevention of Pollution from Ships as modified by the Protocol 1978 of relating thereto, having regard to the amendments adopted by the Marine Environmental

Protection Committee of the International Maritime Organization (IMO).

C — Certificate of conformity filled-in and signed by the Register (form 6.5.30).

СДС — Welder Approval Test Certificate (form 7.1.30).

C3 — Certificate of conformity filled-in and signed by an official of a manufacturer and drawn up (affirmed) by the Register (form 6.5.31).

CO — Agreement on Survey (form 023.1.2).

COCM — Certificate of Approval for Welding Consumables (form 6.5.33).

СОТИ — Certificate of Type Test (forms 2.4.13 and 2.4.19).

COTO — Certificate of Type Approval (forms 2.4.11.1, 2.4.12, 2.4.16.1 and 2.4.17.1).

СОТИС — Welding Procedure Approval Test Certificate (form 7.1.33).

СР — Recognition Certificate (form 7.1.4.2).

СРМ — Recognition Certificate for Manufacturer (form 7.1.4.1).

СРЛ — Recognition Certificate of Testing Laboratory (form 7.1.4.3).

СРП — Certificate of Vocational Training (form 7.1.34).

СРФ — Certificate of Firm Conformity (form 7.1.27).

СТО — Type Approval Certificate (form 6.8.3).

СТПК — Type Approval Certificate for Fire-Proof Division (form 6.8.4).

СТОП — Type Approval Certificate for Computer Program (form 6.8.5).

EIAPP Certificate — Engine International Air Pollution Prevention Certificate (form 2.4.40).

Report 6.3.18 — Report on Survey of Prototype/Serial/Pilot Specimen of Product/Material/Type Structure (form 6.3.18).

Report 6.3.19 — Report on Inspection of Manufacturer/Laboratory (form 6.3.19).

RS Nomenclature — Nomenclature of Items of the Register Technical Supervision.

2 GENERAL

2.1 The RS activity on technical supervision during manufacture of materials and products, technical supervision of services, processes and construction, conversion, modernization and repair of ships is based on the Regulations for Classification of Ships and Offshore Fixed Platforms.

2.2 All works on technical supervision are carried out by the Register based on requests and agreements with organizations, firms and individuals involved in design, manufacture of materials and products, production processes, construction, conversion, modernization and repair of ships, and rendering of services (refer to Section 4).

2.3 Items of the RS technical supervision and technical requirements thereto are defined in the Rules and are listed in the RS Nomenclature (refer to Appendix 1).

2.4 Items not regulated by the RS rules of a non-conventional design or intended for special operating conditions, as well as materials and production processes where special requirements are placed thereupon are specified by the Register as items of technical supervision in each particular case, and technical requirements for such items are specified as additional requirements. Later, based on the results of technical supervision during manufacture and in service, the items of technical supervision may be introduced in the relevant parts of the RS rules and the RS Nomenclature.

2.5 New type materials, products and production processes, which are presented to RS for the first time and which are the items of technical supervision shall be approved by RS for application for the intended purpose.

2.6 Type production processes are subject to the RS review in the following cases:

.1 where the requirements for the particular production process are provided by the RS rules;

.2 where the tests required by the RS rules are provided for in the type production process.

2.7 A possibility of deviations from the RS requirements, where application of methods and scope of supervision prescribed by RS is impracticable or unreasonable, is decided by RHO upon presentation by the RS Branch Offices.

2.8 Items subject to the Register technical supervision in accordance with the RS Nomenclature may be used for their intended purpose only in case documents of the Register or other classification societies issued on its behalf are available.

2.9 Where defects are found or doubts arise in a possibility of using items of technical supervision for the intended purpose, necessary check surveys shall be conducted. If the results of check surveys are unsatisfac-

tory, the items of technical supervision are not allowed to be used whether or not the documents required are available.

2.10 Construction of ships classed with the Register and manufacture of materials and products for the ships classed with the Register shall be in conformity with the technical documentation approved by the Register.

2.11 Where conformity of a material, product, ship with the requirements of conventions and IMO recommendations is required, the technical documentation shall be prepared with due regard to such requirements and recommendations and submitted to the Register for approval. After carrying out necessary surveys in compliance with these requirements and recommendations the Register issues documents prescribed by the international conventions or the Register certificates of the established form with indication of the conformity with those requirements and recommendations.

2.12 The procedure of review and approval by the Register of technical documentation on items of technical supervision, scope of surveys in the course of technical supervision at the firm and production operations to be controlled as well as documents to be issued during supervision, and branding procedure are governed by the relevant sections and parts of these Rules.

2.13 Technical documentation on construction of ships and manufacture of materials and products is reviewed and approved in compliance with Part II "Technical Documentation".

2.14 The scope of the Register technical supervision in the course of construction of a particular ship and manufacture of a particular product is stated in the List of Items of Technical Supervision (refer to Sections 12 and 13), which is elaborated as a working document of technical supervision at the particular manufacturer.

2.15 Based on the agreement on mutual substitution, the Register may authorize another classification society or competent body to perform technical supervision (totally or partially) of the construction of the ship classed with the Register and manufacture of products for the ships classed with the Register or be authorized by another classification society to carry out technical supervision during construction of the ship or manufacture of materials and products.

In such cases, the scope and procedure of technical supervision and documents to be issued shall be specified in the appropriate agreements or authorizations.

2.16 A possibility of recognition of documents for materials and products manufactured under technical supervision of another classification society without the Register authorization is decided by the Register in each particular case during survey of these materials and

products to an extent sufficient to confirm their compliance with the RS requirements, conventions, IMO recommendations, standards and normative documents.

2.17 When carrying out technical supervision, the Register reserves the right to check the compliance of the design, technology and production standards, which are not required but affect the fulfillment of the RS rules.

2.18 Standards used in elaboration of technical documentation, in construction of ships and manufacture of materials and products referred to the items of the RS technical supervision, of production processes, calculation and design standards, testing, checking and quality control procedures shall be agreed upon with the Register. The Register checks the compliance with the standards agreed upon therewith only as regards the technical requirements, which are within its terms of reference.

2.19 Technical supervision during manufacture of materials and products is performed in relation of those properties only, which are regulated by the RS rules, as well as parameters and characteristics indicated in the approved technical documentation. During technical supervision the Register does not determine a grade and category of product quality or check the fulfillment of safety engineering, sanitary and labor organization requirements, or other production aspects, which are beyond the Register terms of reference.

2.20 In its activity the Register does not substitute the prescribed activity of the state supervision authorities or officials of shipowner, shipyard or firm.

2.21 The Register may impose in the course of technical supervision the necessary requirements for the items and production processes not supervised by the Register if it appears that application thereof has resulted or is likely to result in violation of the RS rules.

2.22 The Register carries out technical supervision during construction of ships at the shipyard and manu-

facture of materials and products at the manufacturer by means of surveys. Thus all the questions shall be settled within the frames regulated by the RS requirements.

2.23 The Register can entrust technical personnel at the manufacturer with the check tests or part thereof aiming to check the compliance of materials or products with the RS requirements (refer to Section 4).

2.24 In case of the differences associated with requirements and decisions of the Surveyor carrying out technical supervision, a designer, shipowner or firm may apply directly to the RS Branch Office to resolve the problem. In case of the differences with the RS Branch Office, an appeal containing justifications together with a copy of the RS Branch Office decision may be sent to RHO.

2.25 The Register performs its supervision activities on condition that manufacturers and individuals meet their commitments on manufacturing adequate products. In case of any deficiencies of the item of technical supervision, unsteady production process, low technological discipline and inadequate efficiency of quality system at the manufacturer, the Register does not admit any claims for delays in production, caused by an increase in the scope of surveys of the products because of the above reasons.

2.26 For the work carried out and services rendered the Register charges fees in accordance with the Register pricing system approved in the established order.

In case of non-fulfillment or inadequate fulfillment of the commitments to the Register, including payments for its services, the Register has the right to refuse the organization (firm) to provide of any service requested or to suspend provision of services or not to issue the documents based on the results of the services provided, that confirm compliance of the item of supervision with the RS requirements or in case where the document has been already issued, to suspend or withdraw the issued document.

3 SERVICES RENDERED (WORK CARRIED OUT) IN TECHNICAL SUPERVISION DURING MANUFACTURE OF MATERIALS AND PRODUCTS. DOCUMENTS ISSUED

3.1 When carrying out technical supervision during manufacture of materials and products, construction, conversion, modernization and repair of ships, the Register carries out:

type approval of materials or products with issue of the Type Approval Certificate (CTO);

recognition of the manufacturer with issue of the Recognition Certificate for Manufacturer (СПИ);

recognition of the testing laboratory conducting tests and measurements in accordance with Table 9.1.1 with issue of the Recognition Certificate of Testing Laboratory (СПЛ);

recognition of service suppliers performing the activity in accordance with Table 8.1.1 with issue of the Recognition Certificate (СИ);

audit of the firms performing the activity in accordance with Table 11.1.1 with issue of the Certificate of Firm Conformity (СЦИ).

3.2 The Register keeps records of the above work and can give relevant information thereon.

3.3 Based on the results of technical supervision, the Register issues the following documents of the established form that certify the conformity of the item of technical supervision with the RS requirements, as well as its manufacture (construction) under the Register technical supervision:

Certificate of conformity for a particular material or product (C, C3) is a document certifying the conformity of the particular materials, products or groups of products with the requirements of the RS rules and normative documents;

Type Approval Certificate (CTO) is a document certifying the conformity of types of materials, products or groups of products, type production processes with the requirements of the RS rules (refer to [Section 6](#));

Recognition Certificate for Manufacturer (СПИ) is a document certifying the recognition by the Register of the firm as manufacturer of materials and products for ships subject to the Register technical supervision (refer to [Section 10](#));

Recognition Certificate of Testing Laboratory (СПЛ) is a document certifying the competence of the laboratory in carrying out certain types of tests of the materials and products (refer to [Section 9](#));

Recognition Certificate (СИ) is a document certifying the recognition of the service supplier rendering services (carrying out work) in compliance with the RS requirements (refer to [Section 8](#));

Certificate of Firm Conformity (СЦИ) is a document certifying the conformity of the firm with the RS requirements in carrying out the work indicated in request (refer to [Section 11](#)).

3.4 Validity period of the Recognition Certificate for Manufacturer (СПИ), Recognition Certificate of Testing Laboratory (СПЛ), Recognition Certificate (СИ) and Certificate of Firm Conformity (СЦИ) shall not exceed five years. Certificates are subject to endorsement not less than once every two and half years. Endorsement shall be done within the period limited by one month before and one month after the date of the subsequent endorsement of the certificates. Upon expiry of the validity period the certificates are renewed on request of the firm.

RS reserves the right to carry out occasional surveys of a firm having a valid RS certificate in cases that:

.1 an item of technical supervision has been found non-complying with the RS requirements, in particular, based on information from a third party;

.2 the firm has not notified RS of changes to an item of technical supervision stated on the certificate.

3.5 Validity of the Recognition Certificate for Manufacturer (СПИ), Recognition Certificate of Testing Laboratory (СПЛ), Recognition Certificate (СИ) and Certificate of Firm Conformity (СЦИ) may be suspended for a period agreed upon with the firm but not more than three months from the specified date of endorsement, provided:

.1 minor non-conformities of the firm activity to the RS requirements have been found;

.2 records have not been properly drawn up;

.3 the firm has not applied with the request to endorse the certificate within the established period;

.4 the firm has not informed the Register of the changes in the activity specified in the certificate.

3.6 The Recognition Certificate for Manufacturer (СПИ), Recognition Certificate of Testing Laboratory (СПЛ), Recognition Certificate (СИ) and Certificate of Firm Conformity (СЦИ) become invalid:

.1 upon expiry of the certificate period of validity;

.2 in case causes of the certificate suspension have not been eliminated within the agreed period;

.3 major non-conformities of the firm activity to the RS requirements have been found;

.4 in case the certificate has not been endorsed within the specified period.

3.7 RS informs the firm in the written form of suspension and loss of validity of the certificate.

3.8 Compliance of the equipment with the requirements of the Rules for the Prevention of Pollution from Ships is certified by the Type Approval Certificate (COTO) or Certificate of Type Test (COTИ). Validity period of the Type Approval Certificate (COTO) and Certificate of Type Test (COTИ) is not specified.

3.9 Compliance of the marine engine with the requirements of Annex VI to MARPOL 73/78 is confirmed by Engine International Air Pollution Prevention Certificate (EIAPP Certificate). The EIAPP Certificate is issued to:

- .1 the basic engine of the engine family or group;
- .2 the member engine of the engine family or group (refer to 5.2).

3.10 Compliance of welding consumables and welding procedures with the requirements of the Rules for the Classification and Construction of Sea-Going Ships is certified by the Certificate of Approval for Welding Consumables (COCM) and Welding Procedure Approval Test Certificate (COTPIC).

3.11 In case of technical supervision on behalf of the Register, certificates and other documents of the organization carrying out of technical supervision on behalf of the Register in accordance with Section 14 are recognized.

3.12 The documents confirming the performance of the surveys of materials and products, firms and testing laboratories and being the basis for issuance of the Type Approval Certificate (CTO), Certificate of Approval for Welding Consumables (COCM), Recognition Certificate (CI), Recognition Certificate for Manufacturer (CPII),

Recognition Certificate of Testing Laboratory (CIPI) and Certificate of Firm Conformity (CCII) are Reports 6.3.18 and 6.3.19 (refer to 1.2) drawn up by the Register upon completion of surveys.

The Reports are issued to the firms in the following cases:

when upon the results of surveys the requirements are established, which shall be met by the firm;

when the Report is the only Register document confirming carrying out of work on the Register technical supervision.

In other cases, it is not required to issue the above Reports to the firms.

3.13 Branding of items of technical supervision in cases specified in the RS Nomenclature is made in accordance with the Instructions on Branding of Items of the Register Technical Supervision (refer to [Appendix 2](#)).

3.14 In case of changing any detail of the valid certificate issued in compliance with the provisions of the Rules, except for the Certificates of conformity (C and C3), the certificate becomes invalid. In such case, a new certificate may be issued based on the results of technical supervision, the scope of which is determined by the Register in each particular case.

4 REQUESTS, CONTRACTS AND AGREEMENTS ON TECHNICAL SUPERVISION

4.1 Where supervision of the Register is specified in the ordered (contracted) documentation on design, construction, conversion, modernization and repair of ships, manufacture of materials and products for shipbuilding and ship repairing, as well as carrying out of work referred to in 3.1, a firm shall apply to the Register with a written request to carry out technical supervision and to guarantee payment of the Register services, reimbursement of the Register expenses, as well as with the confirmation of familiarization and agreement with the General Conditions for Rendering Services (Carrying Out of Work) by Russian Maritime Register of Shipping. The General Conditions for Rendering Services (Carrying Out of Work) by Russian Maritime Register of Shipping are constituent and integral part of all the contracts concluded by the Register.

4.1.1 If the firm is not the manufacturer of the products, the firm shall, in addition to the provisions of 4.1, be authorized by the manufacturer (which shall be documented) to do the following:

.1 to submit technical documentation for the product for RS review and approval or to use the technical documentation approved by RS;

.2 to arrange for survey of the product within the necessary scope;

.3 to arrange for testing of the product within the necessary scope or to use reports of the tests earlier conducted by the manufacturer;

.4 to supply the product, and to install and mount it if necessary.

4.1.2 Deviations from the provisions of 4.1.1 shall be regulated with 2.7.

4.2 The request shall provide the information to an extent sufficient for review and execution thereof. In reviewing the request for technical supervision during manufacture of the material or product, a kind of approval (single or type approval) shall be identified.

4.3 Upon reviewing the request depending on the particular conditions of the future technical supervision (scope and item of supervision, duration, etc.), the Register, being guided by the regulations in force, decides on the necessity to conclude a contract on technical supervision or carries out technical supervision based on the request without concluding the contract.

4.4 The contract on technical supervision of the Register at the manufacturer specifies the items of technical supervision and regulates mutual relations, rights and responsibilities of the parties in the course of the Register technical supervision during construction of ships and manufacture of materials and products.

The contract specifies cost of technical supervision, procedure and terms of payment. Where technical supervision is carried out based on the request, without concluding the contract, works are paid and expenses reimbursed according to the invoices made out by the Register.

5.3 In order to obtain the Certificate of conformity, the manufacturer shall apply to the Register with a request.

Technical documentation on the materials or products within the scope regulated by the RS rules shall be submitted together with the request.

5.4 Upon review of the technical documentation the Register sends a conclusion letter to the manufacturer. Where deemed necessary, the manufacturer shall submit the testing programme to the Register to be agreed upon.

5.5 Where in column 5 of the RS Nomenclature "C" or "C3" is indicated, then upon satisfactory results of survey of the material or product the Certificate according to form 6.5.30 (6.5.31) or a Certificate of a special form for the particular type of products (if any) shall be issued.

Branding shall be made where necessary (refer to Appendix 2).

5.6 Where in column 5 of the RS Nomenclature "CTO" is indicated, then the document to be issued is a copy of the Type Approval Certificate (CTO) (refer to 4.5) supplied by the manufacturer together with the material or product. In well-grounded cases, the Certificates (C or C3) may be issued.

5.7 In case of a single approval, the material or product is surveyed to the extent of the prototype.

Given the Type Approval Certificate (CTO) for the materials and products in question, the examination and approval of technical documentation are not required, and the test results for the type specimen are taken into account.

Where a single approval is issued to single products, approval of technical documentation and survey results for the prototype cover only the material or product, for which the Certificates of conformity have been issued.

5.8 Where the manufacturer fabricates forgings, castings, machinery and equipment components needed for its own production (further processing, assembling, construction), as well as mass-production products (ship fittings, hull fittings, etc.), technical supervision may be confirmed by the manufacturer's documents affirmed by the Register.

Where the above products are fabricated by the same manufacturer for cooperation shipments or as the spare parts, supervision shall be confirmed by the Certificates (C, C3, CTO) according to the RS Nomenclature.

6 APPROVAL OF TYPE MATERIALS, PRODUCTS, PRODUCTION PROCESSES AND SOFTWARE

6.1 Type Approval Certificate (CTO) is a document of the Register, which certifies that a construction, properties, parameters, characteristics of a type material or product, found in the course of surveys and indicated in the approved technical documentation, meet the RS requirements and may be used for ships and items of technical supervision for the intended purpose.

The Type Approval Certificate (CTO) for the type production process certifies that an item of supervision manufactured according to the particular type production process and having characteristics and parameters indicated in the approved technical documentation meets the RS requirements and may be used for the intended purpose.

6.2 The Type Approval Certificate (CTO) certifies that the approval of the technical documentation and positive results of surveys of material and product prototype are accounted for by the Register in technical supervision of these materials and products manufactured under the established production conditions and intended for multiple deliveries to ships and floating facilities of various types.

6.3 In order to obtain the Type Approval Certificate (CTO) the manufacturer shall apply to the Register with a request and submit the technical documentation on the material, product, software or production process, as well as the programme and schedule of tests. When reviewing and approving this documentation, the scope of surveys during manufacture and testing of specimens shall be specified.

6.4 The Type Approval Certificate (CTO) is issued by the Register upon approval of the technical documentation and positive results of the surveys of the material, product, software or production process submitted.

For the material or product manufactured according to the established production process the Type Approval Certificate (CTO) is issued, having regard to the data on earlier tests, production and operation experience. Account may be taken of the Type Approval Certificate (CTO) of another classification society or competent body or results of the tests of a type specimen conducted with participation of the above organizations.

6.5 The Type Approval Certificate (CTO) is issued for a period of up to 5 years.

6.5.1 Validity of the Type Approval Certificate (CTO) shall not exceed the period of approval of the technical documentation on the item of technical supervision.

6.5.2 Where the results of type tests carried out by another classification body without RS participation are taken into account, validity of the Type Approval Certificate (CTO) shall not exceed 5 years from the date of completion of the tests.

6.5.3 After the expiry of validity, the Type Approval Certificate (CTO) is renewed on request from the manufacturer. Where the Type Approval Certificate (CTO) is renewed, technical documentation is re-approved and the material, product or production process

is surveyed to the extent agreed upon with the Register.

6.6 The Type Approval Certificate (CTO) is issued by RHO or the RS Branch Office.

The Type Approval Certificate (CTO) becomes invalid if design of the product, its properties, etc. have been changed without agreement with the Register; operational suitability of the material or product is not provided, requirements of the RS rules and international conventions, which have come into force after its issuance and which prescribe mandatory compliance with the requirements, are not met.

6.7 For welding consumables the Certificate of Approval for Welding Consumables (COCM) is issued, being at the same time the document certifying recognition by the Register of the firm as the manufacturer of welding consumables in accordance with the requirements of the RS rules.

The Certificate of Approval for Welding Consumables (COCM) is issued for a period of up to 5 years subject to its annual endorsement.

6.8 The Welding Procedure Approval Test Certificate (COTIIC) is a Register document certifying that a welding procedure used at a shipyard or manufacturer of welded structures has been tested and approved by the Register for application.

The Welding Procedure Approval Test Certificate (COTIIC) is issued for a period of up to 5 years subject to its endorsement at least once every 2,5 years.

6.9 For programmes for computer-aided calculations, in compliance with Section 12, Part II "Technical Documentation", the Type Approval Certificate for Computer Program (CTOII) is issued.

7 GENERAL REQUIREMENTS FOR FIRMS

7.1 GENERAL

7.1.1 The requirements of this Section apply to all firms, which activity is associated with the items of the RS technical supervision and is subject to the RS audit or recognition.

7.1.2 Audit of conformity or recognition of the firm by the Register includes:

.1 review of the documents confirming the compliance of the firm with the RS requirements;

.2 survey of the firm.

7.1.3 The firm shall submit for review:

.1 documents or their copies confirming fulfillment of the requirements of 7.2.1, 7.2.2, 7.2.6, 7.2.7, 7.2.8.3;

.2 list of the activities performed (area of activity);

.3 lists of the personnel containing information on compliance of the personnel with the requirements of 7.2.2.1;

.4 lists of the equipment and facilities indicated in 7.2.3.1, 7.2.4.1;

.5 lists of the documents indicated in 7.2.4.3, 7.2.5.1.

7.1.4 Survey of the firm aims at confirming the compliance of the firm with the requirements of 7.2.

The requirements for the firms performing certain activities are set forth in the relevant sections.

7.2 REQUIREMENTS

7.2.1 Legal status.

7.2.1.1 Legal status of the firm shall comply with the current legislation.

7.2.1.2 The firm shall have organizational structure and the Head.

7.2.2 Personnel.

7.2.2.1 Personnel of the firm shall have an appropriate education, professional and special training, qualification and experience necessary for performance of activity in the area indicated in request.

7.2.2.2 The firm is responsible for qualification and professional training of its personnel in compliance with the national, international and branch standards; in case of absence of these standards – in compliance with the standards of the firm. This requirement shall be established in the documents of the firm.

7.2.3 Technique.

7.2.3.1 The firm shall have the technique necessary for performance of the activity in the area indicated in request, including appropriate equipment, premises and facilities certified in the established order.

7.2.3.2 The firm shall provide the maintenance of the equipment and facilities in compliance with their operating and maintenance documentation.

7.2.3.3 The firm shall perform the activity on the documentation corresponding to each activity in the area indicated in request with regard to the environmental conditions.

7.2.4 Measurement assurance.

7.2.4.1 The firm shall have and apply necessary measurement assurance in compliance with the procedures for testing and checking of items of the RS technical supervision, including:

.1 measuring equipment checked (calibrated) in the established order;

.2 testing equipment certified in the established order;

.3 reference and standard specimens;

.4 appropriate consumables (chemicals, substances, etc).

7.2.4.2 The firm shall provide the maintenance of measuring and testing equipment in compliance with their operating and maintenance documentation.

Table 8.1.1

Code	Kinds of activity
22001000	Thickness measurements on ships under supervision of RS surveyor
22002000	Tightness testing of hatches with ultrasonic equipment
22003000	In-water surveys under supervision of RS surveyor
22004000MK	Survey and maintenance of fire-fighting equipment, systems and outfit
22005000	Survey and maintenance of life-saving appliances:
22005001MK	inflatable liferafts
22005002	containers for inflatable liferafts
22005003MK	hydrostatic release units
22005004	lifebuoys
22005005	position-indicating lights of life-saving appliances, self-activating smoke signals
22005006MK	inflatable lifejackets
22005007MK	inflated rescue boats
22005008	equipment of lifeboats and liferafts
22005009	other life-saving appliances
22005010	marine evacuation systems, means of rescue
22005011	weak link, automatic gas inflation system, embarkation ladders, lifelines
22005012	non-inflatable lifejackets, immersion suits, anti-exposure suits, thermal protective aids
22005013	combined rescue/fast rescue boats
22006000	Maintenance and testing of radio and navigational equipment:
22006001	shore-based maintenance and repair of GMDSS equipment in compliance with the requirements of regulation IV/15 of SOLAS-74 Convention and IMO resolution A.702(17)
22006002MK	servicing and testing of radio communication equipment on board ships or mobile offshore drilling units and fixed offshore platforms for conformity with the requirements of SOLAS-74 Convention (preliminary survey of radio equipment)
22006003	installation, commissioning, maintenance and repair of radio and navigational equipment, replacement of built-in power supply components, programming of radio equipment
22006004MK	annual performance testing of voyage data recorders (VDR) including all sensors in compliance with regulation V/18.8 of SOLAS-74 Convention
22006005	routine works on maintenance and repair of voyage data recorders, replacement of built-in power supply components of VDR
22006006MK	annual testing of EPIRBs of the satellite system COSPAS-SARSAT
22006007MK	shore-based maintenance of EPIRBs of the satellite system COSPAS-SARSAT
22007000MK	Check and test of centralized gas-welding and gas-cutting equipment
22008000MK	Survey and maintenance of personal breathing apparatus
22011000	Check and monitoring of preparation of hull structure surface and application of polymeric materials
22012000	Survey of bow, stern, side and internal doors on ro-ro ships
22015000MK	Survey of low-located lighting systems using photoluminescent materials
22016000MK	Sound pressure level measurements of public address and general alarm systems

8.2.1.3 The firm shall have and adhere to the education, training and re-training programmes.

8.2.1.4 The firm shall have and adhere to plans (schedules) of:

- .1 training and re-training of the personnel;
- .2 refresher training of the personnel;
- .3 certification of the personnel with respect to performance of the certain activities.

8.2.2 Technique.

8.2.2.1 The firm shall have the lists of technique, premises and facilities necessary for performance of activity in the area indicated in request.

8.2.2.2 The firm shall have and adhere to the schedules of maintenance of equipment and facilities.

8.2.3 Measurement assurance.

8.2.3.1 The firm shall have the lists of:

- .1 measuring equipment, including those for certification of testing equipment;
- .2 testing and ancillary equipment;
- .3 references and standard specimens.

8.2.3.2 The firm shall have and adhere to the schedules of:

- .1 maintenance of measuring and testing equipment;

- .2 checking (calibration) of measuring equipment;

- .3 certification of testing equipment.

8.2.4 Files of the firm documents.

8.2.4.1 The firm shall have the current normative and technical documents necessary for performance of the activity in the area indicated in request, including:

- .1 list of activities performed (area of activity);
- .2 Quality Manual or a similar document;
- .3 operating and maintenance documentation on technical equipment;
- .4 operating and maintenance documentation on measuring and testing equipment;
- .5 duty regulations;
- .6 documents on records keeping and archives maintenance.

8.2.5 Reporting.

8.2.5.1 Reports on the results of activity performed shall contain a copy of the Recognition Certificate (CI), in addition to the information specified in 7.2.6.1.

8.2.6 Checking.

8.2.6.1 The firm shall check the compliance of the activity indicated in request with the requirements established in the documentation.

8.2.6.2 The firm personnel responsible for the checking (control) shall have not less than two years of experience as a performer in the area of activity indicated in request.

8.2.7 Quality system.

8.2.7.1 The firm shall have documented quality assurance system covering at least the following:

- .1 Code of Ethics for performance of the relevant activity;
- .2 maintenance of equipment;
- .3 measurement assurance, checking (calibration) of measuring equipment;
- .4 personnel training programmes;
- .5 audits and control to ensure the compliance of the work performance with working procedures;
- .6 maintenance of documentation and reporting;
- .7 quality control of subsidiary companies and agents;
- .8 work preparation;
- .9 measures on elimination and prevention of claims;
- .10 periodical verifications of procedures for working processes, claims, corrective actions, as well as issue, maintenance of validity and control of documents.

8.3 SPECIAL REQUIREMENTS

8.3.1 Special requirements for the firms that perform activity with code 22005000.

8.3.1.1 The Recognition Certificates (CII) issued to the firms that perform the activity with code 22005000 are subject to endorsement at least once a year.

8.3.2 Special requirements for the firms that perform activity with codes 22006001, 22006003, 22006004 and 22006005.

8.3.2.1 Legal status.

8.3.2.1.1 The firm shall produce agreements with equipment manufacturers entitling the firm to perform specific kinds of activity and laying down the procedure for supplying the firm with spares.

8.3.2.2 Personnel.

8.3.2.2.1 The firm shall produce documents certifying that the firm's personnel have completed training at the equipment manufacturer's entitling them to perform specific kinds of activity.

8.3.3 Special requirements for the firms that perform activity with codes 22004000 and 22008000

8.3.3.1 Legal status.

8.3.3.1.1 The firm shall have valid documents permitting to perform maintenance of fire-fighting equipment, systems and outfit issued by the state bodies, which are competent in fire safety area, in compliance with the legislation of the firm's country of registry (if required).

8.3.3.2 File of firm's documents.

8.3.3.2.1 The firm shall have at its disposal applicable documents specified in 4.3, Part IV "Technical Supervision During Manufacture of Products", as well as recognized international and/or national standards establishing the technical requirements and test procedures for technical supervision items.

9 RECOGNITION OF TESTING LABORATORIES

9.1 GENERAL

9.1.1 The requirements of this Section apply to the testing laboratories conducting tests and measurements specified in Table 9.1.1.

9.1.2 Tests of items of the RS technical supervision shall be conducted by the testing laboratories recognized by RS.

9.1.3 The testing laboratory shall meet general requirements listed in Section 7, requirements of 9.2, relevant special requirements of 9.3 and the requirements of Administrations (if any).

9.1.4 Recognition of the testing laboratories by the Register shall be confirmed by the Recognition Certificate of Testing Laboratory (CIIJI) issued in accordance with 3.4 to 3.7.

9.1.5 In individual cases, at the RS discretion, tests may be conducted in the testing laboratories not recognized by RS. At that prior to performance of tests, compliance of the testing laboratory with the requirements of Section 7 and requirements of 9.2.1.1, 9.2.2.1, 9.2.2.2, 9.2.4.1, 9.2.4.2, 9.2.5, 9.2.6 shall be verified.

9.2 REQUIREMENTS

9.2.1 Personnel.

9.2.1.1 Specialists of testing laboratory shall have not less than two years of practical training.

9.2.1.2 The testing laboratory shall have documents on its personnel containing the following information:

- .1 functional duties;
- .2 education;
- .3 experience;
- .4 re-training and terms of its validity;
- .5 certification and terms of its performance.

9.2.1.3 The testing laboratory shall have the regular staff of specialists.

9.2.1.4 The testing laboratory shall have and adhere to the plans (schedules) of:

- .1 training and re-training;
- .2 refresher training;
- .3 certification of the personnel with respect to performance of certain tests.

Table 9.1.1

Codes	Tests and measurements
21001000	Vibroacoustic measurements and tests
21001100	Physical and chemical measurements and tests
21001200	Fire tests of products and materials
21001300	Electromagnetic measurements and tests:
21001301	electrical measurements and tests
21001302	electromagnetic compatibility (EMC) tests
21001400	Ionizing measurements
21001500	Mechanical measurements and tests
21001600	Radio measurements
21001700	Non-destructive tests
21001800	Optical measurements
21001900	Heat engineering measurements and tests
21002000	Equipment protection tests
21002100	Climatic tests
21002200	Oily water analysis
21002300	Fuel and oil analysis
21002400	Analysis of gaseous emissions from marine diesel engines
21002500	Checking of software and/or performance algorithms of radio and navigational equipment
21002600	Tests and periodical checks of foam concentrates
21002700	Tests of fire-fighting systems and fire-fighting outfit

9.2.2 Technique.

9.2.2.1 The technique of testing laboratories shall comply with the testing procedures, according to which tests specified in the RS requirements are conducted for items of technical supervision.

9.2.2.2 Tests shall be conducted in accordance with the relevant testing procedures, including those having regard to the environmental conditions, corresponding to each type of tests in the area indicated in request. Use shall be made of:

- .1 measuring equipment checked (calibrated) in the established order;
- .2 certified testing equipment;
- .3 ancillary equipment;
- .4 references and standard specimens for technical support and measurement assurance of measuring equipment;
- .5 appropriate consumables (chemicals, substances, etc.).

9.2.2.3 The testing laboratory shall have valid contracts for rented testing and measuring equipment.

9.2.2.4 The testing laboratory shall have the lists of:

- .1 measuring equipment, including those used for certification of the testing equipment;
- .2 testing and ancillary equipment;
- .3 references and standard equipment.

9.2.2.5 The testing laboratory shall have and adhere to the schedules of:

- .1 maintenance of measuring equipment and testing equipment;
- .2 checking (calibration) of measuring equipment;
- .3 certification of testing equipment.

9.2.3 Files of the testing laboratory documents.

9.2.3.1 The testing laboratory shall have normative and technical documents necessary for performance of tests in the area of recognition indicated in request, including:

- .1 list of activities performed (area of recognition);
- .2 Quality Manual or another similar document;
- .3 duty regulations;
- .4 operating and maintenance instructions on measuring and testing equipment;
- .5 documents on records keeping and archives maintenance.

9.2.4 Reporting.

9.2.4.1 In addition to the information specified in 7.2.6.1, Test Reports shall contain the following:

- .1 designation: "Test Report" or "Conclusion";
- .2 name and address of the testing laboratory;
- .3 designation of the testing method with reference to the documents, in accordance with which the tests have been conducted;
- .4 reference to the Sampling Report;
- .5 test results with indication of units of measurements in accordance with the testing procedures;
- .6 indication that the test results are valid only for the products tested;
- .7 entry that the tests have been witnessed by the RS representative.

9.2.4.2 Sampling Reports, where applicable, shall contain:

- .1 date of the specimen selection (sampling);
- .2 information that allows for unambiguous identification of specimens (samples) taken;
- .3 place of the specimen selection (sampling);
- .4 information on conditions of the specimen selection (sampling);
- .5 reference to the documents, in accordance with which the specimens have been taken (sampling has been done).

9.2.4.3 Data (documents) confirming performance of tests (Sampling Reports, Test Reports, etc.) shall be kept in the testing laboratory for not less than five years under

conditions of confidentiality. This requirement shall be established in the documents of the testing laboratory.

9.2.5 Checking and control.

9.2.5.1 The testing laboratory shall do the checking and exercise control over the performance of tests and their results.

9.2.5.2 The personnel of the testing laboratory responsible for checking (control) shall have not less than two years of experience as a performer in the area of activity indicated in request.

9.2.5.3 The testing laboratory shall conduct check tests in compliance with the area of recognition indicated in request witnessed by the RS representative.

9.2.6 Conditions of taking, transport and storage of samples.

9.2.6.1 Conditions of taking, transport and storage of samples shall meet the requirements of the testing procedures.

9.2.6.2 The testing laboratory shall identify the samples.

9.3 SPECIAL REQUIREMENTS

9.3.1 Special requirements for testing laboratories engaged in dye penetrant examination, radiographic examination, ultrasonic examination, magnetic particle examination of welds quality (code 21001700).

9.3.1.1 Reporting.

9.3.1.1.1 The testing laboratory shall have and maintain test logs.

9.3.1.1.2 A Statement (Test Report), in addition to the information specified in 9.2.4.1, and test logs shall contain:

.1 a reference to the RS Rules or other normative document as agreed with the RHO regarding the use of criteria for assessing the quality of welds at radiographic examination;

.2 a reference to normative documents regarding the use of criteria for assessing the quality of welds at ultrasonic examination, dye penetrant examination, and magnetic particle examination;

.3 thickness of components at ultrasonic examination and radiographic examination (refer to Part XIV "Welding" of the Rules for the Classification and Construction of Sea-Going Ships);

.4 description of defects in accordance with applicable national or international standards.

9.3.1.1.3 Designation of controlled lengths for duplicating radiographic examination shall correspond

to the designation of the controlled lengths used at ultrasonic examination.

9.3.1.2 Files of testing laboratory documents.

9.3.1.2.1 The testing laboratory shall have instructions on performing assessment of the quality of welds taking into account the RS requirements.

9.3.1.3 Recognition Certificates of Testing Laboratory (CITJ) are subject to endorsement at least once a year.

9.3.2 Special requirements for testing laboratories carrying out fire tests of products and materials (code 21001200).

9.3.2.1 The testing laboratory shall be recognized by the Register. Recognition Certificate of Testing Laboratory (CITJ) is issued to the testing laboratory, carrying out fire tests, by the RHO or RS Branch Offices on behalf of the RHO.

9.3.2.2 Legal status.

9.3.2.2.1 The testing laboratory, as its routine activity, carries out checks and tests identical to those in the relevant parts of the Fire Test Procedures Code (refer to 1.2, Part VI "Fire Protection" of the Rules for the Classification and Construction of Sea-Going Ships) or similar to them.

9.3.2.2.2 The testing laboratory shall not belong to the manufacturer, seller or supplier of the product/material to be tested and not to be under their control.

9.3.2.3 Facilities.

9.3.2.3.1 The testing laboratory has access to arrangements, equipment, personnel and calibrated instrumentation needed for checks and tests performance.

9.3.2.4 Audits and control.

9.3.2.4.1 The testing laboratory shall use the quality control system being audited by competent bodies.

9.3.3 Special requirements for testing laboratories carrying out tests of fire-fighting systems and fire-fighting outfit (code 21002600).

9.3.3.1 Facilities.

9.3.3.1.1 The testing laboratory facilities shall be consistent with the test procedures specified in applicable documents mentioned in 4.3, Part IV "Technical Supervision During Manufacture of Products".

9.3.4 Special requirements for testing laboratories carrying out tests and periodical checks of foam concentrates (code 21002700).

9.3.4.1 Facilities.

9.3.4.1.1 The testing laboratory facilities shall be consistent with the test procedures specified in the Guidelines on characteristics, test criteria and surveys of foam concentrates (refer to IMO Circulars MSC/Circ.582 and Corr. 1, MSC/Circ.670, MSC/Circ.798 and MSC/Circ.799).

10 RECOGNITION OF MANUFACTURERS

10.1 GENERAL

10.1.1 The requirements of this Section apply to the manufacturers of materials and products listed in the RS Nomenclature.

10.1.2 The firms manufacturing materials and products in compliance with the requirements of 1.3.1.3, Part X "Boilers, Heat Exchangers and Pressure vessels" and Part XIII "Materials" of the Rules for the Classification and Construction of Sea-Going Ships shall be recognized by the Register. In other cases, manufacturers may be recognized on the voluntary basis.

10.1.3 The manufacturer shall meet general requirements listed in Section 7, requirements of 10.2 and requirements of the Administrations (if any).

10.1.4 Recognition of the manufacturer by the Register is confirmed by the Recognition Certificate for Manufacturer (СПИ), which is issued in compliance with 3.4 to 3.7.

10.2 REQUIREMENTS

10.2.1 Personnel.

10.2.1.1 The manufacturer shall have documents on the personnel containing the following information:

- .1 functional duties;
- .2 re-training and its terms of validity;
- .3 certification and terms of its performance.

10.2.1.2 The manufacturer shall have the regular staff of specialists.

10.2.1.3 The manufacturer shall have and adhere to the plans (schedules) of:

- .1 training and re-training of the personnel;
- .2 refresher training of the personnel;
- .3 certification of the personnel with respect to performance of certain activities.

10.2.2 Technique.

10.2.2.1 The manufacturer shall have the lists of equipment, premises and facilities necessary for performance of activity in the area indicated in request.

10.2.2.2 The manufacturer shall have and adhere to the schedules of maintenance of equipment and instrumentation.

10.2.3 Measurement assurance.

10.2.3.1 Tests of materials and products shall be conducted in the testing laboratory meeting the requirements of Section 9.

10.2.4 Files of the manufacturer's documents.

10.2.4.1 The manufacturer shall have the normative and technical documents necessary for performance of activities in the area indicated in request, including:

- .1 list of activities performed (area of activity);
- .2 operating and maintenance documentation on equipment;
- .3 operating and maintenance documentation on measuring and testing equipment;
- .4 duty regulations;
- .5 documents on records keeping and archives maintenance.

11 AUDITS OF FIRMS

11.1 GENERAL

11.1.1 The requirements of this Section apply to the firms performing the activity in connection with items of the RS technical supervision, the types of which are specified in Table 11.1.1.

11.1.2 Where technical supervision is conducted in the firms engaged in the activity with codes 22009000, 22013000, 22014000, 22014001, 22014002 and 22017000, these firms shall be audited by RS for compliance with the requirements of Section 7 and the Administrations' requirements (if any).

In future the Register reserves the right to audit the firm for compliance with the requirements of Section 7, where necessary.

In addition to the requirements of Section 7, the firm may be audited on a voluntary basis against the requirements of 11.2.

11.1.3 Audits of design offices engaged in the activity with code 22018000 are only conducted on a voluntary basis. In this case, the design office shall meet the general requirements listed in Section 7 (except for 7.2.4, 7.2.5.1.2, 7.2.6.1.8, 7.2.6.1.10, 7.2.6.1.12), the requirements of 11.2 (except for 11.2.3, 11.2.4.1.3), special requirements and the Administrations' requirements (if any).

11.1.4 Compliance of the firm with the requirements of Section 7, requirements of 11.2, relevant special requirements and Administrations' requirements (if any) is confirmed by the Certificate of Firm Conformity (ССП), which is issued and endorsed in accordance with 3.4 to 3.7. In case the Certificate of Firm Conformity (ССП) is available, the audits are conducted in accordance with the conditions for its issue.

Table 11.1.1

Code	Kinds of activity
22009000	Diagnostics of devices, installations, machinery, equipment, hull structures and other items of technical supervision
22013000	Measurement assurance of items of technical supervision
22014000	Construction, conversion, modernization and repair of items of technical supervision (ships, hull structures, ship equipment, products, etc.)
22014001	Installation and commissioning of electrical and automation equipment
22014002	Maintenance and repair of electrical and automation equipment
22017000	Theoretical training and welders' practical qualification tests (at certification centers)
22018000	Design

11.2 REQUIREMENTS

11.2.1 Personnel.

11.2.1.1 The firm shall have documents on the personnel containing the following information:

- .1 functional duties;
- .2 re-training and its terms of validity;
- .3 certification and terms of its performance.

11.2.1.2 The firm shall have the regular staff of specialists.

11.2.1.3 The firm shall have and adhere to the plans (schedules) of:

- .1 training and re-training of the personnel;
- .2 refresher training of the personnel;
- .3 certification of the personnel with respect to certain activities.

11.2.2 Technique.

11.2.2.1 The firm shall have the lists of equipment, premises and facilities necessary for performance of activity in the area indicated in request.

11.2.2.2 The firm shall have and adhere to the schedules of maintenance of equipment and facilities.

11.2.3 Measurement assurance.

11.2.3.1 The firm shall have the lists of:

- .1 measuring equipment, including those for certification of testing equipment;
- .2 testing and ancillary equipment;
- .3 references and standard specimens.

11.2.3.2 The firm shall have and adhere to the schedules of:

- .1 maintenance of measuring and testing equipment;
- .2 testing (calibration) of measuring equipment;
- .3 certification of testing equipment.

11.2.4 Files of the firm documents.

11.2.4.1 The firm shall have the normative and technical documents necessary for performance of activity in the area indicated in request, including:

- .1 list of activities performed (area of activity);
- .2 operating and maintenance documentation on equipment;
- .3 operating and maintenance documentation on measuring and testing equipment;
- .4 duty regulations;
- .5 documents on records keeping and archives maintenance.

12 TECHNICAL SUPERVISION AT THE MANUFACTURER

12.1 The Register performs technical supervision at the manufacturer on the basis of the contract or request on technical supervision (refer to Section 4).

When concluding the contract the manufacturer shall be audited for conformity with the requirements of Sections 10 or 11. Where deemed necessary, check tests of manufacturer's products may be required.

In performing technical supervision on a single request, fulfillment of the requirements of 7.2.2.1, 7.2.3, 7.2.4, 7.2.5, 7.2.7, 7.2.8 regarding the production process of the item of technical supervision shall be preliminarily verified.

In compliance with the provisions of Sections 10 or 11, the Recognition Certificate for Manufacturer (CIII) or the Certificate of Firm Conformity (CCII) may be issued. The manufacturer shall be regularly audited for compliance with the requirements of Sections 10 or 11 within the terms agreed upon with the Register, which are established when the contract is concluded; in case the Recognition

Certificate for Manufacturer (CIII) or Certificate of Firm Conformity (CCII) is available, the audits are carried out in accordance with the conditions of their issuance.

12.2 Before commencement of the technical supervision the manufacturer shall draw up a list of the items of technical supervision in order to specify the scope and procedure of items surveys and tests of the items of the Register technical supervision. The list shall be based on the requirements of the RS rules and these Rules and shall be agreed upon with the RS Branch Office. The items of technical supervision, detailed technical documentation on manufacture of the material or product, or construction of the ship, surveys and tests to be performed in the course of technical supervision, their procedure, as well as the documents to be issued and a necessity for branding shall be indicated therein.

12.3 The items of technical supervision are generally surveyed by the Register at the final stage of production

(finished products) after acceptance of the products by the manufacturer's technical control body and issue of the appropriate documents.

In separate cases, where it is motivated by the production process and/or design of the product, at the discretion of the Register, surveys may be performed on a step-by-step basis and simultaneously with the manufacturer's control.

Surveys at the intermediate stages of production of the items of technical supervision are carried out in the cases prescribed by the Register after completion of manufacturer's functional control or at the discretion of the Register, if motivated by the particular conditions of production.

12.4 The Register may require incoming control of materials and component parts, if it is found that they do not meet the RS requirements, or, if they are used, the items of technical supervision will not meet those requirements. In case of unsatisfactory results of the incoming control use of such materials is not allowed, regardless of availability of the certificates and other documents certifying their conformity with the RS requirements.

12.5 In the course of technical supervision at the manufacturer's the Register checks the maintenance of the conditions, under which manufacturers and laboratories have been recognized and/or the contract on technical supervision concluded.

12.6 In carrying out technical supervision the Register may allow deviations from the approved technical documentation only within its authorities.

12.7 The manufacturer shall provide all the conditions necessary for the Register to carry out the technical supervision, namely:

- to present the required technical documentation, in particular, manufacturer's documents on quality control of the products;

- to prepare the items of technical supervision for survey in the scope required;

- to provide for safety of surveys;

- to provide for availability of the officials authorized to present the items of technical supervision for surveys and tests;

- to timely inform the Register of the time and place of surveys and tests of the items of technical supervision.

Where the conditions required for performance of surveys are not fulfilled by the manufacturer, the Register has the right to refuse to carry out surveys or to witness tests.

12.8 Upon satisfactory results of surveys and tests, the Register issues the appropriate documents for the items of technical supervision and puts the brands in the prescribed cases (refer to Sections 3, 4 and Appendices 1, 2).

13 TECHNICAL SUPERVISION AT THE SHIPYARD DURING CONSTRUCTION OF SHIPS

13.1 Technical supervision during construction of ships is performed on the basis of the contract signed between the Register and the shipyard (refer to Section 4).

For the purpose of technical supervision the shipyard (firm) is audited for conformity with the requirements of Section 11. Based on the audit results, the Certificate of Firm Conformity (CCII) (refer to Section 11) may be issued. In case the Certificate of Firm Conformity (CCII) is available, the audits are conducted in accordance with the conditions of its issuance.

13.2 Scope and procedure of the technical supervision, types of checks, tests and control are indicated in the List of Items of Technical Supervision¹.

Along with the surveys performed under the List, additional periodical checks shall be conducted (refer to 13.4 and 13.5).

The List is the basic working document used in the course of technical supervision at the shipyard.

13.3 The List shall be elaborated by the shipyard and agreed upon with the RS Branch Office². The List is

compiled on the basis of the RS Nomenclature for each prototype (single) ship, as well as ships of a series.

13.3.1 To be indicated in the List are hull structure items of technical supervision and hull construction processes, machinery, equipment and outfit, electrical and radio equipment.

In case of module³ construction of ships, structural modules comprising hull structures in the form of panels, sections or blocks, which are used directly in assembling hulls or intended for assembly units (zone, mounting blocks, block modules) shall be indicated.

Referred to the items of technical supervision are also production processes and individual works subject to technical supervision by the Register.

Scope of surveys, numbers of drawings, layouts, procedures and programmes of tests, production processes, etc. shall be indicated in the List for each item of technical supervision.

One presentation to the Surveyor, covering one or several items of technical supervision or works com-

¹ Hereinafter referred to as "the List".

² Hereinafter by the RS Branch Office is also meant a Survey Station of the RS Branch Office at the shipyard in accordance with the regulations for Survey Station.

³ Here and hereinafter module and unit construction of ships is also meant.

pleted in the particular production workshop or at the particular stage of ship construction shall be made for each item of the List. Account shall be taken of construction sequence and other conditions of building a ship. The shipyard and the RS Branch Office shall take measures for minimum number of presentations.

13.3.2 On agreement with the RS Branch Office, use may be made as the List of one or several documents elaborated by the shipyard in accordance with its existing practice, such as manufacturer's standard on presentation to the Register of structures and works performed or a list of presentation of sections, or the book of presentation of spaces for structural integrity, watertightness, etc. Shipyard's documents shall contain the data indicated in the List.

The RS Branch Office has the right, based on the experience of construction of ships and data on their operation, to introduce necessary improvements and additions into the List. The shipyard shall update the agreed documents, if required by the Surveyor.

13.3.3 Surveys under the List¹ are performed by the Surveyor upon presentation by the technical control body of the item of technical supervision or completed works together with the documents issued, finally verified by the shipyard and prepared for submission to the Register.

The main target of surveys under the List is checking of the quality of the item of technical supervision at a particular stage of manufacture as provided by the production process and its admittance for further stages of hull construction. If defects or deficiencies, which shall be eliminated, are found, the Surveyor shall require repeated presentation of the item of technical supervision for survey.

In case defects are found at some stage of construction, the Surveyor shall, irrespective of the List, require checking of the preceding operations to find out the cause of defects and to prevent their re-occurrence.

13.4 Along with the surveys performed according to the List, the Surveyor carries out the following inspections not associated with the official presentation by the shipyard's technical control body: quality of check operations performed by the shipyard and production of individual parts and components of constructions, being parts of the items of technical supervision, which are presented under the List, as well as the sequence of production processes used for the manufacture of the item of technical supervision and providing quality thereof.

In so doing, special attention shall be given to detection of the faults and defects, which cannot be revealed in the course of surveys under the List upon completion of the appropriate works.

Inspections may relate to the certain items of technical supervision indicated in the List, to the ship, as well as to the production workshop, laboratory, production process, etc. The interval between the inspections is decided by the Surveyor depending on the nature of the item of technical supervision, quality of works performed by the shipyard and production conditions. Inspections of the particular item of technical supervision shall be (as far as it is practicable) in the sequence of the processes used in construction of the ship and shall precede the appropriate inspections under the List.

13.5 The Surveyor may perform surveys not associated with the technical supervision during construction of the particular ships, but emerging from functions of the Register on technical supervision at the manufacturer or prescribed by the rules, guidelines and other normative documents of the Register, as well as arising from the contract on technical supervision with the Register.

13.6 Where inspections are associated with the particular norms, which are not contained in the applicable rules, the Surveyor shall use the approved technical documentation, including standards, specifications, instructions on the production processes.

13.7 The shipyard shall immediately inform the Surveyor of all cases where fractures, deformations, considerably exceeding the permissible limits², fires resulting in damage of hull structures (deformations, fusing, burn of the metal, etc.), machinery, equipment, floodings and other (mostly emergency) cases occur, which can cause diminution of quality or danger of such diminution, replacement of machinery, equipment and outfit.

The Surveyor performs the survey and requires from the shipyard to eliminate the defects (or their causes) and specifies the scope and methods of elimination.

13.8 Prior to installation of machinery, arrangements, equipment and outfit the Surveyor shall check that all items of technical supervision are provided with the documents confirming their production under technical supervision of the Register.

13.9 The documents on all deviations from the technical design as well as on fulfilment of remarks of the Surveyor made at the previous stages of the technical supervision shall be submitted to the Surveyor.

13.10 Technical supervision of the Register in the course of tests of equipment and trials of the ship aims at checking the conformity of their quality and completeness with the approved technical design, the RS rules and standards as well as with the provisions of international conventions applicable to the completed ship.

13.10.1 Scope of trials of ships includes:

- .1 preparation for trials;
- .2 mooring trials;
- .3 sea trials;

¹ Hereinafter by the List are also meant the shipyard's documents referred to in 13.3.2.

² Other than deformations, for elimination of which approved technologies are available.

- .4 inspection;
- .5 trial voyage, check trials;
- .6 operational trials (for a prototype ship).

The RS Branch Office in charge of technical supervision during construction directly participates in the trials of the ships at all stages, other than those referred to in 13.10.1.1 and 13.10.1.6. Technical supervision at stages indicated in 13.10.1.1 and 13.10.1.6 consists in checking and review of the technical documentation.

13.10.2 Preparation for trials is carried out by the shipyard engaged in the particular ship construction. The results of the work, namely: entries in the forms, dealing with deslushing of the equipment, measurement tables concerning adjustment and alignment works shall be submitted to the Surveyor to the Register in advance of commencement of mooring trials of the particular equipment.

13.10.3 Technical supervision in the course of mooring and sea trials of ships, machinery, arrangements, equipment and outfit provided in the RS Nomenclature is performed by the Surveyors of the RS Branch Office in charge of technical supervision during construction of the ship or another RS Branch Office authorized by RHO.

13.10.4 The programme of mooring and sea trials is elaborated, agreed upon and approved in compliance with the requirements in force of the applicable rules and approved technical documentation.

13.10.5 Mooring and sea trials are carried out in accordance with the programme of mooring and sea trials, approved by the Register. Testing programmes for non-conventional ships in terms of their purpose or type and for ships being built in the countries where there is no RS Branch Office are reviewed by RHO. In all other cases, test programmes are reviewed by the Inspectorate performing technical supervision during construction of ships.

The programme of mooring and sea trials shall include the stages listed in 13.10.1.1 to 13.10.1.5.

13.10.6 To be specified in the test programme for every type of machinery, arrangements, systems and equipment are technical requirements, to be indicated also are necessary explanations, descriptions and procedures, namely:

- .1 conditions, under which the tests shall be performed;
- .2 scope of tests;
- .3 duration of modes of operation;
- .4 list of parameters to be measured;
- .5 frequency of measurements;
- .6 sequence of tests;
- .7 instruments and equipment to be used;
- .8 loading devices;
- .9 other auxiliary equipment necessary for performance of the tests.

13.10.7 Provision shall be made in the programme of mooring and sea trials for technological instructions on

combined tests of machinery, arrangements, systems, equipment, on application of simulation and instrument methods of checks, on use of outside sources of power, etc. Use of simulation methods of testing and outside sources of power is subject to special consideration by the Register.

When testing the ship equipment, which consists of a number of items of machinery, arrangements, systems and apparatus (e.g. ship main propulsion plants)¹, the programme shall provide simultaneous testing under specified conditions of all items of machinery, systems, arrangements and apparatus, which are parts of the system.

13.10.8 Account shall be taken in the programme of mooring and sea trials of the requirements of standards and technical documentation on delivery as well as the requirements of suppliers' programmes for tests of the equipment they supply.

Where testing procedures agreed upon with the Register are used, reference shall be made thereto in the programme of mooring and sea trials.

The shipyard documents issued after mooring and sea trials shall include the measurements indicated in the sections of this Part.

13.10.9 The programme of mooring and sea trials shall provide for the inspection with subsequent check tests of machinery, arrangements, equipment or their assemblies after completion of sea trials. The scope of the inspection as well as duration and scope of the check tests are set up on agreement with the Surveyor.

13.10.10 Operational tests of the prototype ship are carried out by the customer (shipowner) in accordance with the special programme after commissioning the ship.

Test reports for seaworthiness and ice tests of ships as well as for vibration tests (if they are transferred to the period of operational tests) shall be submitted to the RS Branch Office in due time upon the completion of the trials.

13.10.11 Unless other terms of delivery are specified, the shipyard in charge of the ship construction is responsible for safety in the course of trials and safety of the ship.

The shipyard building the ship organizes performance of trials and conditions preventing any influence on test results as well as provides for the requirements for safe navigation.

13.10.12 The shipyard building the ship creates all the conditions for technical supervision by the Surveyor in the course of mooring and sea trials of the ship in compliance with the requirements of the rules and provides with:

- .1 shipborne and shipyard communication facilities;
- .2 transport means.

¹Referred to them are main engines, shaftings and propellers with transmissions, bearings and couplings as well as their auxiliary machinery, systems, arrangements, boilers, pressure vessels and similar equipment.

The equipment provided by the shipyard for use during the tests shall be operated in conformity with the regulations for their operation and maintenance instructions.

The Surveyor to the Register is not authorized to operate the equipment with his own hands or interfere with the actions of attending personnel. In case actions of the personnel might cause an accident or damage to the equipment, the Surveyor to the Register has the right to require, via representatives of the technical control body or a person who is in charge of delivery of the ship, elimination of breaches (including refusal from further participation in the trials conducted).

13.10.13 When testing the equipment, all works, which interfere with proper performance of the tests or endanger people involved in the tests, shall be stopped. The equipment tested and the space around shall be clean, free from foreign objects; provision shall be made of proper illumination and ventilation of the spaces.

Simultaneously with presentation of the item of supervision, technical documentation required for survey shall be submitted.

13.10.14 Mooring and sea trials are performed under the approved programme according to the schedule agreed upon with the Surveyor. Justified deviations from the schedule likely to occur shall not interfere with the test process.

13.10.15 The items of technical supervision, which test results do not meet the requirements of the applicable rules or the approved documentation, shall be re-tested upon elimination of causes of unsatisfactory test results.

13.10.16 Elimination of deficiencies and re-testing shall be agreed upon with the Surveyor. Re-testing shall not affect further tests or interfere with their safety.

13.10.17 Measurements, which are taken by the technical control body and ascertain that the item of technical supervision is in good working order, shall be processed by the body upon completion of the tests of the item of technical supervision and submitted to the Surveyor.

In case of satisfactory results the Surveyor signs the shipyard document on completion of tests of the items of technical supervision, to which the tables of measurements are appended, where necessary.

13.10.18 A break in testing items of technical supervision under continuous operating conditions shall be indicated in the test report, and an issue of continuation of the tests and the conditions of their performance (extension of time period and scope) shall be agreed upon with the Surveyor, having regard to the causes of interruption of the tests.

13.10.19 In case of the second forced interruption of the same continuous mode of testing, the tests shall be stopped and the causes eliminated. Then re-testing shall be carried out in full or extended scope, where necessary.

The time for test performance shall be agreed upon with the Surveyor.

13.10.20 The tests of items of technical supervision shall be stopped in the following cases:

.1 where faults or defects are found, the elimination of which requires a longer break than is specified by the programme (refer to 13.10.14);

.2 where the item of technical supervision is in an emergency condition;

.3 in case the weather gets worse and it interferes with further performance of the tests, distorts the test results, affects safety of test performance and safety of the ship.

Depending on the causes, the decision to stop the tests is made by the Surveyor, shipyard or customer (on agreement with the Surveyor).

Whoever took the decision to stop the tests, the item of technical supervision shall be re-tested, the duration and scope of the tests shall be agreed upon with the Register.

13.10.21 In case tests of the item of technical supervision are stopped on demand of the Surveyor or by the shipyard on agreement with the Surveyor, a report is prepared, in which reasons why the tests have been stopped, requirements for elimination of those reasons before repeated tests will commence and conditions of performance of repeated tests are indicated.

13.10.22 The items of technical supervision may be installed on board the ship, which have not been totally tested by the shipyard, provided the tests have been carried out under a special programme agreed upon with the Register with subsequent tests according to the programme of mooring and sea trials.

This requirement applies to prototype ships of a series.

13.10.23 The Surveyor to the Register does not participate in the work of the customer's acceptance commission.

13.11 The mooring trials are conducted to check:

.1 arrangement, completeness, quality of installation, adjustment and serviceability of main and auxiliary machinery, arrangements, systems, equipment and outfit as well as conformity of the parameters with the requirements of the RS rules, these Rules and approved technical documentation;

.2 readiness of the ship, its main and auxiliary machinery, arrangements, systems and equipment for sea trials.

13.12 Prior to mooring trials the shipyard shall submit the following documentation to the Surveyor:

.1 documents of the technical control body certifying the completion of installation works;

.2 programme of mooring trials approved by the Register;

.3 schedule of mooring trials (to be agreed upon with the Surveyor);

.4 contract specification;

.5 list of deviations from the RS rules and approved technical documentation with justification of the necessity to do so;

.6 lists of ship outfit and spare parts;

.7 certificates for the items of technical supervision;

.8 passports for the items of technical supervision with data on installation works;

.9 documents on the instruments, showing their fitness for application in tests;

.10 descriptions of the items of technical supervision and instructions on their maintenance;

.11 testing procedure (including simulation tests with layouts of simulating devices);

.12 additional technical documentation necessary for carrying out surveys, tests and preparation of the Register documents (specifications, standards, etc.).

13.13 The commencement of the mooring trials is decided by the shipyard management on agreement with the Surveyor, provided the requirements referred to in 13.12 are met.

13.13.1 The items of technical supervision shall be presented for mooring trials upon completion of all installation works and completion of main construction works, which are likely to affect the testing of the item, and this shall be confirmed by the appropriate documents of the technical control body.

13.13.2 The technical control body, irrespective of the programme and schedule available, shall timely inform the Surveyor of the readiness of the items of technical supervision for tests and of the time of their performance.

13.13.3 Surveys and tests of the item of technical supervision are carried out by the Surveyor upon acceptance of the item by the technical control body.

13.13.4 Where poor quality installation or adjustment as well as other deficiencies or deviations from the approved documentation and applicable rules are revealed in the course of survey or tests, a document on poor quality products is prepared according to the form adopted at the shipyard. The repeated presentation of the item of technical supervision for the survey or test is made upon a request of the managers of the technical control body and engineering service of the shipyard.

13.13.5 Fulfilment of the requirements for certain items of technical supervision (in exceptional cases) may be transferred to the period of the sea trials or some other time, provided these requirements do not interfere with the sea trials or affect the safety of ship navigation and people on board.

13.13.6 Upon completion of the mooring trials and elimination of the deficiencies found in the course of the trials, a document is prepared, which certifies that the ship may go to sea trials. It is done on the basis of the written application of the shipyard or shipowner, in which, in particular, information on the number of the participants of the sea trials and provision of collective and individual life-saving appliances shall be given.

13.14 The sea trials aim at:

checking of the main parameters of the main propulsion plant and of their conformity with the specification characteristics;

checking of operation of the main propulsion plant in manoeuvring under ahead and astern movement of the ship;

checking of reversing qualities of the main propulsion plant;

checking of serviceability of the main propulsion plant under conditions close to those of actual operation;

checking of serviceability of deck and other machinery and arrangements;

checking of automation equipment of the ships, if any, under conditions close to those of actual operation;

final tests of the items of technical supervision, except for those, which shall be inspected and subjected to subsequent check tests;

checking of serviceability of navigational, radio and electrical equipment under conditions close to those in actual operation;

measurements of torsional vibration of the main engine-shafting-propeller system, vibration measurements;

confirmation of a possibility to assign the Register class provided in the design to the ship according to its intended purpose and of a possibility to issue the Register documents.

13.14.1 A Report (form 6.3.10), in which fulfilment of the mooring trial programme is confirmed, availability of ship outfit required for going to sea trials and allowed number of people on board are indicated, availability of the approved Information on Stability and Subdivision, based on results of the inclining test in accordance with the RS rules is confirmed, weather and navigation area restrictions are given, is a document confirming a possibility of going to sea trials. The Report is used instead of Seaworthiness Certificate during sea trials.

13.14.2 Prior to sea trials the shipyard shall submit the following documentation to the Surveyor:

.1 documents of the technical control body, which confirm the completion of the mooring trials;

.2 programme of sea trials approved by the Register;

.3 schedule of sea trials (to be agreed upon with the Surveyor);

.4 testing procedure;

.5 technical documentation necessary for surveys and tests;

.6 for sister ship, Information on Damage Trim and Stability, Information on the Effect of Flooding updated according to the results of the previous inclining test, where necessary;

.7 for prototype ship, preliminary Information on Damage Trim and Stability, Information on the Effect of Flooding, Inclining Test Report and stability calculations;

.8 where necessary, documentation referred to in 13.12.4, 13.12.5, 13.12.7 to 13.12.10 shall be presented in addition to the above.

13.14.3 Upon presentation of the documents listed under 13.14.2, the Surveyor issues the Report (form 6.3.10), which confirms a possibility to go to sea trials as stated in 13.14.1.

13.14.4 A possibility of going to sea trials is decided by the shipyard, on agreement with the Surveyor, provided the requirements of 13.14.1 and 13.14.2 are met.

13.14.5 The area for sea trials shall be agreed upon with the Surveyor in terms of its conformity with the conditions specified by the requirements of the RS rules, these Rules and approved technical documentation. The suggested area for sea trials shall provide:

- safety of performance of the sea trials;
- no influence on the test results;
- a possibility to carry out all the required surveys.

13.14.6 Upon completion of the sea trials or tests under operating conditions without ship movement, using simulation methods, the Surveyor communicates his remarks to the shipyard, which shall be eliminated before the Register issues the ship's documents, as well as a list of the items of technical supervision to be opened up and the scope of inspection.

13.14.7 In the course of the inspection individual assemblies are disassembled to identify their condition and a necessity in check tests after the inspection.

13.14.8 The list of the items of technical supervision to be inspected and the scope of the inspection are decided on the basis of mooring and sea trials having regard to the experience of technical supervision of the similar items.

13.14.9 Inspection results are stated in the technical control body's report which shall contain:

- .1 list of the items of technical supervision to be inspected;
- .2 description of the defects found;
- .3 cause of defect;
- .4 measures to eliminate the defects.

The Report shall be signed by the Surveyor as applied only to the items of the Register technical supervision.

13.14.10 Before the trial voyage all the defects found in the course of mooring and sea trials and the inspection shall be eliminated, all the remarks made by the Surveyor shall be taken into account.

13.14.11 A necessity in the trial voyage shall be agreed upon with the Surveyor and is generally governed by the following conditions:

- .1 where the item of technical supervision needs to be inspected and the check tests thereof cannot be carried out without the trial voyage;
- .2 where parameters characterizing proper operation of the item of technical supervision can be obtained only in the trial voyage;

.3 where, based on the results of mooring and sea trials and/or inspection, a need appeared in total replacement of the item of technical supervision or in replacement of vital assemblies, which serviceability can be confirmed only in the course of the trial voyage;

.4 where simulation means do not allow to obtain the required conditions or such means are not available.

Satisfactory results of mooring and sea trials as well as of the trial voyage are the basis for issuing the RS documents to the completed ship.

13.15 In technical supervision of the prototype ship tests account shall be taken of the following.

13.15.1 The prototype ship tests are carried out under a comprehensive programme, including checking of the ship characteristics and determination of the parameters, which can be used for series ships without this checking.

13.15.2 The comprehensive programme for prototype ship tests shall include the following:

- .1 torsional vibration measurements of the main engine — intermediate link (shafting, reduction gear, couplings) — propeller system;
- .2 vibration measurements of individual items of machinery and hull structures;
- .3 inclining test;
- .4 sea trials under conditions as close to those of actual operation as possible;
- .5 broadened scope of inspection;
- .6 longer testing modes;
- .7 trial voyage under the same conditions as in the course of the sea trials.

13.15.3 In case a list of arrangements to be made or recommended for use in the following ships of the series is elaborated upon completion of the prototype ship tests, such list shall be agreed upon with the Register.

13.15.4 Upon completion of construction, mooring and sea trials, inspection and trial voyage the RS Branch Office in charge of technical supervision during construction of the ship prepares the information for RHO, where necessary.

13.15.5 Where deemed necessary, having regard to the purpose of the ship and in case of using prototypes of materials, machinery and equipment, the Register documents shall specify operational tests thereof according to the programme approved by the Register.

13.16 The technical supervision performed in the course of construction finishes with preparation of reports on survey, on which basis the documents to be issued by the Register to the ship are prepared.

13.17 Before completion of ship construction, in order to ensure traceability, the shipyard shall provide the Register with copies of RS Certificates (with an inventory) issued to the ships' items of technical supervision, or a list thereof, which is to include the name of the item, manufacturer, type and number of the Certificate issued by RS.

14 TECHNICAL SUPERVISION ON BEHALF OF THE REGISTER

14.1 The Register can authorize another classification or competent body to carry out technical supervision on its behalf.

14.2 Technical supervision on behalf of the Register is performed on the basis of the agreement on mutual substitution and under a particular authorization of the Register or an agreement made between the Register and the organization.

14.3 Where an authorization is given by the Register, items and scope of technical supervision, the procedure of the technical documentation approval, documents to be issued shall be specified. Besides, the procedure of payment for technical supervision services can also be indicated.

14.4 Unless provided otherwise, certificates and other documents issued by the organization in charge of technical supervision on behalf of the Register shall have the following notice: "Under authorization of the Register, No. _____ of _____ 20 ____".

14.5 Unless expressly provided otherwise, technical supervision is performed according to the procedures used by the authorized organization.

14.6 The authorizations for technical supervision are issued by RHO.

14.7 The Register reserves the right to cancel the authorization for technical supervision issued.

15 TECHNICAL SUPERVISION ON BEHALF OF OTHER CLASSIFICATION SOCIETIES

15.1 Technical supervision on behalf of other classification societies is performed by the Register on the basis of the agreement on mutual substitution and under a particular authorization of another classification society or an agreement made between the Register and another classification society.

15.2 When the Register is authorized by another classification society, items and scope of technical supervision, procedure of the technical documentation approval, documents to be issued shall be specified. Besides, the procedure of payment for supervision services can also be indicated.

15.3 Unless expressly provided otherwise, certificates or other documents issued by the Register on behalf

of another classification society shall have the following notice: "Under authorization of (name of another classification society)".

15.4 Unless expressly provided otherwise, technical supervision is performed according to the Register practice.

15.5 Authorizations for technical supervision from other classification societies shall be forwarded to RHO. The RS Branch Offices may work on behalf of other classification societies only upon written confirmation by RHO.

15.6 Other classification societies have the right to cancel authorization for technical supervision issued.

APPENDIX 1

NOMENCLATURE OF ITEMS OF THE REGISTER TECHNICAL SUPERVISION

1. Nomenclature of Items of the Register Technical Supervision is a list of materials, products, production processes and software regulated by the RS rules.

2. Definitions and abbreviations given in Section 1 of Part I "General Regulations for Technical Supervision" of these Rules are used in the RS Nomenclature, as well as:

P — technical supervision performed directly by the Surveyor;

CTO* (Type Approval Certificate) or C3* (Certificate of conformity filled-in and signed by an official of a manufacturer and drawn up (affirmed) by the Register) — only upon RHO authorization;

K — branding of items of technical supervision;

K* — branding of each rolled product;

MK — item subject to technical supervision in compliance with the requirements of international conventions.

3. The RS Nomenclature is presented in the form of the table comprising nine columns.

Column 1: "Code of item of technical supervision" — identification code of the material, product, production process or software is indicated, which consists of eight characters grouped in the following groups, each group consisting of two characters:

1st group — part of the RS rules, serial number;

2nd group — groups of machinery, systems, constructions, materials, production processes, software;

3rd group — types of machinery, systems, constructions, materials;

4th group — parts, assemblies;

5th group ("letter group") items of technical supervision covered by the international conventions.

Column 2 "Item of technical supervision" — name of the material, product, production process or software according to the RS rules is indicated.

Columns 3 to 9 "Technical supervision of the Register" — types of technical supervision are indicated:

supervision performed by the Surveyor (P), document C is issued;

supervision performed by the firm and confirmed by the Register, document C3 is issued;

supervision performed through type approval of the item of technical supervision, Type Approval Certificate (CTO), Type Approval Certificate for Fire-Proof Division (CTIHK), Certificate of Approval for Welding Consumables (COCM), Type Approval Certificate for Computer Program (CTOII), Welding Procedure Approval Test Certificate (COTIIC) are issued.

Column 3 "of the prototype" — necessity of supervision of the prototype performed directly by the Surveyor (P) is indicated.

Column 4 "type approval" — obligation of type approval of the item of technical supervision is indicated to be confirmed by Type Approval Certificate (CTO), Type

Approval Certificate for Fire-Proof Division (CTIHK), Certificate of Approval for Welding Consumables (COCM), Type Approval Certificate for Computer Program (CTOII), Welding Procedure Approval Test Certificate (COTIIC). In separate cases, at the discretion of the Register, where a single approval is given for the material or product, Certificate (C) may be issued without issuing the document on type approval.

Column 5 "document issued" — the RS document is indicated, which is issued in case of the particular type of supervision providing the minimum permissible control for the particular material or product over fulfillment of the RS requirements.

In separate cases, at the RS discretion, types of supervision may be changed by RS.

Column 6 "branding" — obligation of branding of items of technical supervision in compliance with the Instructions on Branding of Items of the Register Technical Supervision (refer to Appendix 2) is indicated.

Columns 7, 8, 9 "installation, application", "mooring trials", "sea trials" — necessity of technical supervision during construction of ships performed directly by the Surveyor is indicated.

4. RS Nomenclature contains the following sections:

02000000MK Life-saving appliances

03000000 Arrangements, equipment, outfit

03000000MK Signal means

04000000MK Radio equipment

05000000MK Navigational equipment

06000000 Fire protection

07000000 Machinery installations

08000000 Systems and piping

09000000 Machinery

10000000 Boilers, heat exchangers and pressure vessels

11000000 Electrical equipment

12000000 Refrigerating plants

13000000 Materials

14000000 Welding consumables

14000000MK Cargo-handling gear

15000000 Automation

16000000 Glass-reinforced plastic ships and boats

18000000 Nuclear ships and nuclear support vessels

19000000MK Equipment and appliances for prevention of pollution from ships

20000000 Computer software (computer calculation programs)

5. Manufacturers supply materials or products with the originals of the Certificates (C, C3) or Type Approval Certificate (CTO), Certificate of Approval for Welding Consumables (COCM), Certificate of Type Approval (COTO), Certificate of Type Test (COTI), Type Approval Certificate for Computer Program (CTOII), Type Approval Certificate for Fire-Proof Division (CTIHK) as indicated in column 5.

Shipboard internal combustion engines covered by regulation 13 of Annex VI to MARPOL 73/78 shall be supplied with EIAPP Certificate and approved NO_x Technical file.

NOMENCLATURE OF ITEMS OF THE REGISTER TECHNICAL SUPERVISION

Code of item of technical supervision	Item of technical supervision	Technical supervision of the Register						
		of prototype	type approval	at the manufacturer		during construction of ship		
				document issued	branding	installation, application	mooring trials	sea trials
1	2	3	4	5	6	7	8	9
0200000MK	LIFE-SAVING APPLIANCES							
0201000MK	Lifeboats and launching appliances:							
0201002MK	Release mechanisms	P	CTO	C	K	P	—	—
0201010MK	Launching appliances for lifeboats, rescue boats, fast rescue boats and liferafts:							
0201010MK	launching appliances using falls and winches for lifeboats	P	CTO	C	K	P	P	—
02010102MK	free-fall launching appliances for lifeboats	P	CTO	C	K	P	P	—
02010103MK	launching appliances for rescue boats	P	CTO	C	K	P	P	—
02010104MK	launching appliances for fast rescue boats	P	CTO	C	K	P	P	—
02010105MK	launching appliances for liferafts	P	CTO	C	K	P	P	—
02010200MK	Lifeboats:							
02010201MK	partially enclosed lifeboats	P	CTO	C	K	P	P	—
02010202MK	totally enclosed lifeboats	P	CTO	C	K	P	P	—
02010203MK	totally enclosed lifeboats with a self-contained air support system	P	CTO	C	K	P	P	—
02010204MK	fire-protected totally enclosed lifeboats	P	CTO	C	K	P	P	—
02010305MK	free-fall lifeboats	P	CTO	C	K	P	P	—
02010306MK	free-fall lifeboats with a self-contained air support system	P	CTO	C	K	P	P	—
02010307MK	fire-protected free-fall lifeboats	P	CTO	C	K	P	P	—
0202000MK	Liferafts, rescue boats, fast rescue boats:							
0202010MK	Containers for inflatable liferafts	P	CTO	C3	—	P	—	—
0202020MK	Arrangements for launching and raising for liferafts, lifeboats and rescue/fast rescue boats	P	CTO	C	K	P	P	—
02020300MK	Hydrostatic release units	P	CTO	C3	—	P	—	—
02020400MK	Weak link of life raft	P	CTO	C3	—	P	—	—
02020500MK	Automatic gas inflation system for inflatable liferafts, marine evacuation systems, means of rescue, inflatable lifejackets	P	CTO	C3	K	P	—	—
02020600MK	Liferafts:							
02020601MK	inflatable liferafts	P	CTO	C	K	P	—	—
02020602MK	rigid liferafts	P	CTO	C	K	P	—	—
02020603MK	self-righting liferafts	P	CTO	C	K	P	—	—
02020604MK	canopied reversible liferafts (with two canopies)	P	CTO	C	K	P	—	—
02020700MK	Rescue boats:							
02020701MK	rigid rescue boats	P	CTO	C	K	P	P	—
02020702MK	inflated rescue boats	P	CTO	C	K	P	P	—
02020703MK	combined rescue boats	P	CTO	C	K	P	P	—
02020800MK	Fast rescue boats:							
02020801MK	rigid fast rescue boats	P	CTO	C	K	P	P	—
02020802MK	inflated fast rescue boats	P	CTO	C	K	P	P	—
02020803MK	combined fast rescue boats	P	CTO	C	K	P	P	—
0203000MK	Means for bringing lifeboats and liferafts against ship's side and holding them alongside, skates	—	—	—	—	P	P	—
0204000MK	Embarkation ladders, lifelines	P	CTO	C3	—	P	—	—
0205000MK	Lifebuoys	P	CTO	C	K	P	—	—
02050100MK	Self-igniting lights	P	CTO	C3	—	P	—	—
02050200MK	Self-activating smoke signals	P	CTO	C3	—	P	—	—
02050300MK	Buoyant lifelines	—	CTO	CTO	—	P	—	—
0206000MK	Lifejackets, immersion suits, anti-exposure suits and thermal protective aids							
02060100MK	Lifejackets:							
02060101MK	non-inflatable lifejackets	P	CTO	C3	K	P	—	—
02060102MK	inflatable lifejackets	P	CTO	C3	K	P	—	—
02060200MK	Immersion suits:							
02060201MK	immersion suits with thermal insulation	P	CTO	C3	K	P	—	—
02060202MK	immersion suits without thermal insulation	P	CTO	C3	K	P	—	—

1	2	3	4	5	6	7	8	9
02060300MK	Anti-exposure suits	P	CTO	C3	K	P	—	—
02060400MK	Thermal protective aids	P	CTO	C3	—	P	—	—
02070000MK	Lif jackets lights	P	CTO	C3	—	P	—	—
02080000MK	Line-throwing appliances	P	CTO	C	—	P	—	—
02090000MK	Equipment of survival craft, rescue boats/fast rescue boats:							
02090001MK	lifeboat steering gears	—	—	—	—	P	—	—
02090002MK	masts with sails and stays	—	—	—	—	P	—	—
02090003MK	oars, thole pins or crutches, buoyant oars	—	—	—	—	P	—	—
02090004MK	cap or plug of drain valves of lifeboats	—	—	—	—	P	—	—
02090005MK	lifelines, handrails	—	—	—	—	P	—	—
02090006MK	boarding ladder of lifeboat and boarding ramp of liferaft	—	—	—	—	P	—	—
02090007MK	buoyant rescue quoit of liferafts with buoyant line	P	—	C3	—	P	—	—
02090008MK	lifeboat manual draining pumps	P	—	C3	—	P	—	—
02090009MK	protective covers	P	—	—	—	P	—	—
02090010MK	searchlights of lifeboats and rescue boats	P	CTO	C3	—	P	—	—
02090011MK	life-saving signals table	—	—	—	—	P	—	—
02090012MK	signal whistles	P	CTO	C3	—	P	—	—
02090013MK	boat compasses	P	CTO	C3	—	P	—	—
02090014MK	internal and external lights of liferafts and lifeboats, lights of rescue/fast rescue boats	P	CTO	C3	—	P	—	—
02090015MK	repair outfit (with instructions) for inflatable liferafts	—	—	—	—	P	—	—
02090016MK	waterproof electric torch	P	—	C3	—	P	—	—
02090017MK	food ration	P	CTO	C3	—	P	—	—
02090018MK	fresh water	P	CTO	C3	—	P	—	—
02090019MK	valves for inflatable liferafts and inflated rescue/fast rescue boats	P	CTO	C3	—	P	—	—
02090020MK	First-aid outfit	P	CTO	C	—	P	—	—
02110000MK	Sea activated power sources for lif jacket and liferaft lights and lifebuoy self-igniting lights	P	CTO	C3	—	P	—	—
02120000MK	Marine evacuation systems	P	CTO	C	K	P	—	—
02130000MK	Symbols for use in accordance with SOLAS-74 as amended	P	CTO	C3	—	P	—	—
02140000MK	Means of rescue	P	CTO	C	K	P	P	—
02150000MK	Type production processes	—	—	—	—	—	—	—
03000000	ARRANGEMENTS, EQUIPMENT, OUTFIT							
03010000	Rudder and steering gear:	—	—	—	—	P	P	P
03010100	rudder stocks including their flanges	P	—	C	K	P	—	—
03010101	rudder stock bearings	P	—	C3	—	P	—	—
03010102	parts of roller laying of steering gears	P	—	CTO	—	P	—	—
03010103	chains of steering ropes	P	—	CTO	—	P	—	—
03010200	rudder axles including their flanges	P	—	C	K	P	—	—
03010201	parts of connections of rudder axles with stemframe	P	—	C3	—	P	—	—
03010300	Nozzle rudder in assembly:	P	—	C	K	P	P	P
03010301	pintles	P	—	C3	K	P	—	—
03010302	pintle bushes	—	—	C3	—	P	—	—
03010303	parts for coupling rudder stock with nozzle rudder	P	—	C3	—	P	—	—
03010304	limiters of putting nozzle rudder over either side	P	—	—	—	P	—	—
03010400	rudder blade	P	—	C	K	P	—	—
03010401	pintles	P	—	C3	K	P	—	—
03010402	pintle bushes	P	—	C3	—	P	—	—
03010403	couplings	—	—	C3	—	P	—	—
03010404	limiters of putting rudder blade over either side	—	—	—	—	P	—	—
03010500	tillers	P	—	C3	—	P	—	—
03010501	parts of coupling tiller with rudder stock	—	—	C3	—	P	—	—
03010600	rudder quadrants	P	—	C3	—	P	—	—
03010601	parts for coupling quadrant with rudder stock	—	—	C3	—	P	—	—
03020000	Anchor arrangement:	—	—	—	—	P	P	P
03020005	anchor hawses	—	—	C3	—	P	—	—
03020100	anchors	P	CTO	C	K	P	—	—
03020300	anchor stoppers	P	—	C3	—	P	P	—
03020400	device for securing and releasing the inboard end of the chain cable or rope	P	—	C3	—	P	P	—

1	2	3	4	5	6	7	8	9
03030000	Mooring arrangement:	—	—	—	—	P	P	—
03030001	bollards, cleats, fairleaders, hawses, rollers and stoppers	—	—	C3	—	P	P	—
03040000	Towing arrangements:	—	—	—	—	P	P	P
03040001	bitts, bollards, fairleaders, rollers and stoppers	—	—	C3	—	P	—	—
03040002	tow hooks, tow line releasing devices	P	—	C3	—	P	—	—
03040003	snatch-blocks	—	—	C3	—	P	—	—
03040004	towing rails	—	—	—	—	P	—	—
03040100	Emergency towing arrangement:	P	—	C	—	P	P	—
03040101	chain devices	P	—	C3	—	P	—	—
03040102	tow lines	P	—	C3	—	P	—	—
03040103	tow securing arrangements	P	—	C3	—	P	—	—
03050000	Signal masts:	P	—	C3	—	P	—	—
03050001	metal, wooden and glass-reinforced plastic rigging fixed gear of masts and their standing rigging	P	—	C3	—	P	—	—
03050002	loose gear of standing rigging	P	—	C3	—	P	—	—
03060000	Openings in hull, 1st and 2nd tiers of superstructures and deckhouses and their closing appliances:	—	—	—	—	P	P	—
03060100	side and flush deck scuttles, round and square, wheelhouse windows (see also code 06010006MK)	P	CTO	C3	—	P	P	—
03060101	glasses for side and flush deck scuttles, round and square, wheelhouse windows	P	—	C3	—	—	—	—
03060200	in bottom side shell plating doors	P	—	C3	—	P	P	—
03060300	outside doors in superstructures and deckhouses	P	CTO	C3	—	P	P	—
03060400	covers of companion hatches, skylights and ventilation trunks	P	CTO	C3	—	P	P	—
03060500	ventilation pipes	P	—	C3	—	P	P	—
03060700	doors in watertight bulkheads	P	CTO	C3	—	P	P	—
03060800	hatch covers of dry cargo holds, holds fitted for alternate carriage of bulk liquid and dry cargoes, tweendecks, cargo tanks	P	—	C3	—	P	P	—
03060801	tank manhole covers	P	—	CTO	—	P	P	—
03070000	Equipment of spaces:	—	—	—	—	—	—	—
03070001	plating, hold battens, linings in cargo holds	—	—	—	—	P	—	—
03070005	cellular guide members in holds of container carriers	—	—	—	—	P	—	—
03070200	doors in ship's spaces on escape routes	—	—	C3	—	P	—	—
03070300	stairways and vertical ladders	—	—	—	—	P	—	—
03070400	guard rails, bulwark and catwalk bridges	—	—	—	—	P	—	—
03070600	devices for securing movable decks, platforms, ramps and similar structures	P	—	C3	—	P	P	P
03070700	low-location lighting systems (photoluminescent, electrically powered)	P	—	C3	—	P	—	—
03080000	Grain fittings:	—	—	—	—	—	—	—
03080001	removable metal bulkheads	—	—	C3	—	—	—	—
03080003	shroud wire ropes	—	—	C3	—	—	—	—
03080004	gears of shrouds	—	—	C3	—	P	—	—
03090000	Arrangement for attachment of timber deck cargo	—	—	C3	—	P	—	—
03100000	Items made of ropes for all applications	P	—	C3	—	P	P	—
03110000	Emergency outfit:	—	—	—	—	P	—	—
03110001	thrummed mats, armoured mats with outfit	—	—	C3	—	P	—	—
03110002	tools	—	—	—	—	P	—	—
03110003	materials	—	—	—	—	P	—	—
03120000	MODU jacking frame of self-elevating system:	—	—	—	—	P	P	P
03120001	sliders and their guides	P	—	C	K	P	—	—
03120002	catches and their bearers	P	—	C	K	P	—	—
03120003	yokes and their latches	P	—	C	K	P	—	—
03120004	securing plates of hydraulic cylinders	P	—	C	—	P	—	—
03120005	support screws with nuts	P	—	C	K	P	—	—
03120006	jack frames	P	—	C	—	P	—	—
03120007	rack-and-pinion shafts	P	—	C	—	P	—	—
03120008	pinions and wheels	P	—	C	K	P	—	—
03120009	shafts	P	—	C	K	P	—	—
03120010	fastenings	P	—	C3	—	P	—	—

1	2	3	4	5	6	7	8	9
03130000	MODU arrangements for lifting and lowering columns of submersible sea water pumps:	—	—	—	—	P	P	—
03130001	columns and guides	P	—	C3	—	P	—	—
03130002	column support	P	—	C3	—	P	—	—
03130003	stoppers	P	—	C3	—	P	—	—
03140000	MODU fixing arrangements:	—	—	—	—	P	P	P
03140001	plates	P	—	C3	—	P	—	—
03140002	sliders	P	—	C3	—	P	—	—
03140003	screws and nuts	P	—	C3	—	P	—	—
03150000	Parts of lifting appliances for shipborne barges (lugs, eye plates, eyes, shackles, grips)	—	—	—	—	P	P	—
03200001	Type production processes	—	—	—	—	—	—	—
03160000	Securing devices of general cargo on board the ships:							
03160100	lashings (rope, chain, bar, belt, wire)	P	CTO	C3	K	P	—	—
03160200	tension devices (turnbuckles, bridge fittings)	P	CTO	C3	K	P	—	—
03160300	burtresses and shores	P	CTO	C3	K	P	—	—
03160400	locks (automatic and semi-automatic stoppers, stacking cones with locking pin)	P	CTO	C3	K	P	—	—
03160500	stacking cones (single, double, etc.)	P	CTO	C3	K	P	—	—
03160600	penguin hooks	P	CTO	C3	—	P	—	—
03160700	joint rings, lashing plates	P	CTO	C3	—	P	—	—
03160800	pedestal and flush sockets, dove-tail type sockets	P	CTO	C3	—	P	—	—
03200000	Type production processes	—	—	—	—	—	—	—
03000000MK	SIGNAL MEANS							
03010000MK	Navigation lights	P	CTO	C3	K	P	P	P
03020000MK	Flashing lights	P	CTO	C3	K	P	P	P
03030000MK	Sound signal means	P	CTO	C3	K	P	P	P
03040000MK	Pyrotechnic signal means	P	CTO	C3	—	P	—	—
03050000MK	Signal shapes	—	CTO	CTO	—	P	P	—
03060000MK	Radar reflectors	P	CTO	C3	—	P	P	—
03100000MK	Type production processes	—	—	—	—	—	—	—
04000000MK	RADIO EQUIPMENT							
04020000	Radiotelephone communication facilities:							
04020900	VHF radiotelephone station	P	CTO*	CTO	—	P	P	P
04021100	UHF radiotelephone station	P	CTO*	CTO	—	P	P	P
04021200MK	two-way VHF radiotelephone apparatus for communications with aircraft	P	CTO*	C3*	—	P	P	P
04030500	portable two-way radiotelephone station	P	CTO*	CTO	—	P	P	P
04040000MK	Command broadcast facilities (command broadcast apparatus of public address system, microphone posts)	P	CTO*	C3	—	P	P	P
04070000	Aerial	P	CTO*	CTO	—	P	P	P
04080000	Marine clocks for radio rooms	P	CTO*	CTO	—	P	P	P
04090000	Satellite radio communication equipment	P	CTO*	C3	—	P	P	P
04110000MK	GMDSS radio equipment:							
04110100MK	digital selective calling (DSC) encoder	P	CTO*	C3	—	P	P	P
04110200	facsimile device	P	CTO*	CTO	—	P	P	P
04110300MK	terminal printing device	P	CTO*	C3	—	P	P	P
04110400MK	telephony and NBDP receiver	P	CTO*	C3	—	P	P	P
04110500MK	telephony, DSC and NBDP transmitter	P	CTO*	C3	—	P	P	P
04110600MK	VHF radiotelephone station	P	CTO*	C3	—	P	P	P
04110700MK	MF radiotelephone station	P	CTO*	C3	—	P	P	P
04110800MK	MF/HF radiotelephone station	P	CTO*	C3	—	P	P	P
04110900MK	direct-printing apparatus of improved fidelity	P	CTO*	C3	—	P	P	P
04111100MK	radio equipment power supply device, automatic battery charger	P	CTO*	C3	—	P	P	P
04111200	GMDSS workstations	P	CTO*	C3	—	P	P	P
04120000MK	VHF radio installation (set)	P	CTO*	C3	—	P	P	P
04130000MK	MF radio installation (set)	P	CTO*	C3	—	P	P	P
04140000MK	MF/HF radio installation (set)	P	CTO*	C3	—	P	P	P
04150000MK	INMARSAT ship earth station	P	CTO*	C3	—	P	P	P
04150100MK	INMARSAT ship earth station with EGC receiver	P	CTO*	C3	—	P	P	P
04150200MK	ship security alert system (SSAS)	P	CTO*	CTO	—	P	P	P
04160000MK	COSPAS-SARSAT satellite EPIRB	P	CTO*	C3	—	P	P	P
04170000MK	VHF EPIRB using DSC on channel 70	P	CTO*	C3	—	P	P	P
04180000MK	NAVTEX service receiver	P	CTO*	C3	—	P	P	P

1	2	3	4	5	6	7	8	9
04190000MK	enhanced group calling (EGC) receiver	P	CTO*	C3	—	P	P	P
04200000MK	DSC watch receiver	P	CTO*	C3	—	P	P	P
04210000MK	HF direct-printing radiotelegraph receiver	P	CTO*	C3	—	P	P	P
04220000MK	radar transponder	P	CTO*	C3	—	P	P	P
04230000MK	two-way VHF radiotelephone apparatus	P	CTO*	C3	—	P	P	P
04240000	diagnosis and checking systems for GMDSS equipment	P	CTO*	CTO	—	—	—	—
04250000MK	integrated GMDSS radio communication system	P	CTO*	C3	—	P	P	P
04400000	radio equipment not mentioned above	P	CTO*	— ¹	—	P	— ¹	— ¹
04410000	Ship Security Sur-veillance TV System	P	CTO	CTO	—	—	P	P
05000000MK	NAVIGATIONAL EQUIPMENT							
05010000MK	Magnetic compasses (standard, spare, lifeboat)	P	CTO*	C3	—	P	P	P
05010100MK	transmitting heading devices (THD)	P	CTO*	C3	—	P	P	P
05020000MK	Gyrocompasses	P	CTO*	C3	—	P	P	P
05030000MK	Logs (speed and distance measuring devices)	P	CTO*	C3	—	P	P	P
05040000MK	Deck logs	P	CTO*	CTO	—	P	P	P
05050000MK	Echo sounders	P	CTO*	C3	—	P	P	P
05060000MK	Heading control systems/track control systems	P	CTO*	C3	—	P	P	P
05070000MK	Integrated navigation systems	P	CTO*	C3	—	P	P	P
05080000	Combined ship's workstation	P	CTO*	C3	—	P	P	P
05090000	Horizontal sonar navigational systems	P	CTO*	CTO	—	P	P	P
05100000MK	Gyro-magnetic compasses and gyro-azimuths	P	CTO*	C3	—	P	P	P
05110000	Unified timing systems	P	CTO*	CTO	—	P	P	P
05120000MK	Rate-of-turn indicators	P	CTO*	C3	—	P	P	P
05130000MK	Electronic chart display and information system (ECDIS)	P	CTO*	C3	—	P	P	P
05140000MK	Radionavigation equipment:							
05140100MK	radars with electronic plotting aid (EPA) and automatic tracking aid (ATA)	P	CTO*	C3	—	P	P	P
05140200MK	radars with automatic radar plotting aid (ARPA)	P	CTO*	C3	—	P	P	P
05140250	radar are intended for ship's below 300 gross tonnage	P	CTO*	C3	—	P	P	P
05140300MK	radionavigation system receivers	P	CTO*	C3	—	P	P	P
05140400MK	Ship's radar reflectors	P	CTO*	C3	—	P	P	P
05150000MK	Automatic identification system (AIS)	P	CTO*	C3	—	P	P	P
05160100MK	Voyage data recorders (VDR)	P	CTO*	C3	—	P	P	P
05160200MK	Simplified voyage data recorders (S-VDR)	P	CTO*	C3	—	P	P	P
05170000MK	Sound reception systems	P	CTO*	C3	—	P	P	P
05180000MK	Alarm and communication systems (for OMBO ships)	P	CTO*	CTO	—	P	P	P
05190000MK	Bridge navigational watch alarm systems (BNWAS)	P	CTO*	CTO	—	P	P	P
05300000	Navigational equipment not mentioned above	P	CTO*	— ¹	—	P	— ¹	— ¹
06000000	FIRE PROTECTION							
06010000MK	Structural fire protection:							
06010100MK	fire-proof bulkheads, decks and ceilings bulkheads:							
06010101MK	A-60 class	P	CTHK	CTHK	—	P	—	—
06010102MK	A-30 class	P	CTHK	CTHK	—	P	—	—
06010103MK	A-15 class	P	CTHK	CTHK	—	P	—	—
06010105MK	B-15 class	P	CTHK	CTHK	—	P	—	—
06010106MK	B-0 class	P	CTHK	CTHK	—	P	—	—
	decks:							
06010107MK	A-60 class	P	CTHK	CTHK	—	P	—	—
06010108MK	A-30 class	P	CTHK	CTHK	—	P	—	—
06010109MK	A-15 class	P	CTHK	CTHK	—	P	—	—
	ceilings:							
06010111MK	B-15 class	P	CTHK	CTHK	—	P	—	—
06010112MK	B-0 class	P	CTHK	CTHK	—	P	—	—
06010200MK	fire-proof doors:							
06010201MK	A-60 class	P	CTHK	CTHK	—	P	—	—
06010202MK	A-30 class	P	CTHK	CTHK	—	P	—	—
06010203MK	A-15 class	P	CTHK	CTHK	—	P	—	—
06010204MK	A-0 class	P	CTHK	CTHK	—	P	—	—
06010205MK	B-15 class	P	CTHK	CTHK	—	P	—	—
06010206MK	B-0 class	P	CTHK	CTHK	—	P	—	—
06010003	Fuses for dampers	P	CTO	CTO	—	P	—	—
06010004MK	Fire dampers for ventilation ducts	P	CTO	CTO	—	P	—	—
06010005MK	Cable transit, pipe and duct penetrations	P	CTO	CTO	—	P	P	—
06010006MK	Windows and sidescuttles (see Regulations II-2/4.5.2.3 and II-2/9.4.1.3 of SOLAS-74)	P	CTHK	C3	—	P	P	—
06010207MK	Arrangements for automatic closing of fire doors	P	CTO	CTO	—	P	P	—
06010300MK	C class bulkheads, doors	P	CTHK	CTHK	—	P	—	—

1	2	3	4	5	6	7	8	9
06020000MK	Materials, deck coverings, paints, varnishes							
06020100MK	Materials:							
06020101MK	insulation (plates, panels, mats, cords, etc.)	P	CTO	CTO	—	P	—	—
06020102MK	facing	P	CTO	CTO	—	P	—	—
06020103MK	furniture, curtains, etc.	P	CTO	CTO	—	P	—	—
06020104MK	bedclothes	P	CTO	CTO	—	P	—	—
06020200MK	Deck coverings (linoleum, carpets, mastics)	P	CTO	CTO	—	P	—	—
06020300MK	Paints, varnishes for exposed surfaces inside spaces	P	CTO	CTO	—	P	—	—
06020400MK	Primary deck coating	P	CTO	CTO	—	P	—	—
06030000MK	Fire-extinguishing systems:							
06030100MK	water fire main system	P	—	—	—	P	P	—
06030200MK	sprinkler system	P	CTO	CTO	—	P	P	—
06030300MK	pressure water-spraying system	P	—	—	—	P	P	—
06030400	water-screen system	P	—	—	—	P	P	—
06030500MK	water fog system	P	CTO	CTO	—	P	P	—
06030600MK	foam fire-extinguishing system	P	CTO	CTO	—	P	P	—
06030700MK	fixed local application fire extinguishing system for use in machinery spaces	P	CTO	C3	—	P	P	—
06030800MK	Carbon dioxide system as well as systems containing fire-extinguishing gas in cylinders	P	CTO	C3	—	P	P	—
06031100MK	Powder system	P	CTO	C3	—	P	P	—
06031200MK	Aerosol system	P	CTO	C3	—	P	P	—
06050000MK	Items of fire-fighting systems:							
06050200MK	sprinkler heads and control detection devices	P	CTO	C3	—	—	—	—
06050300MK	spray nozzles, monitors	P	CTO	CTO	—	—	—	—
06050600MK	high-expansion foam generators	P	CTO	C	—	—	—	—
06050800	mixers of foam systems, tanks for the storage of foam-generating liquid	P	CTO	CTO	—	—	—	—
06060000	Fire-fighting outfit:							
06060100MK	fire hoses complete with couplings	P	CTO	C3	—	P	—	—
06060200MK	fire hoses nozzles	P	CTO	CTO	—	P	—	—
06060300MK	air-foam nozzles	P	CTO	CTO	—	P	—	—
06060400MK	portable foam generators	P	CTO	CTO	—	P	—	—
06060500MK	portable foam sets	P	CTO	CTO	—	P	P	—
06060800MK	water fog applicators	—	—	—	—	P	—	—
06060900MK	portable fire extinguishers	P	CTO	CTO	—	P	—	—
06061000MK	45 L and 136 L foam fire extinguishers	—	CTO	C3	—	P	—	—
06061100MK	16 kg and 45 kg CO ₂ or powder fire extinguishers	—	CTO	C3	—	P	—	—
06061200	sand receptacles, fire hose cabinets	—	—	—	—	P	—	—
06061300	blanket	—	—	—	—	P	—	—
06061400MK	fireman's outfit (clothing, boots, gloves, helmet)	—	CTO	C3	—	P	—	—
06061500MK	portable safety lamp	P	CTO	CTO	—	P	—	—
06061600MK	self-contained breathing apparatus, emergency escape breathing device	—	CTO	C3	—	P	—	—
06061700MK	flexible fireproof lifeline	P	CTO	CTO	—	P	—	—
06061800MK	protective clothing for work with dangerous goods	—	CTO	C3	—	P	—	—
06061900	portable fire motor pumps	P	CTO	C3	K	P	P	—
06062000MK	international shore connection	—	—	—	—	P	—	—
06062100MK	foam concentrate, powder, special gas and other fire-extinguishing substances	P	CTO	CTO	—	P	—	—
06062300MK	gas analyser for vapours of flammable liquids, gases and oxygen content	—	CTO	C3	—	P	—	—
06070000	Water intake system from sea water storage tanks of self-elevating MODU	—	—	—	—	P	P	—
06080000	MODU gas detection and alarm system	P	CTO	CTO	—	P	P	—
06090000MK	Smoke detection system operating on the principle of air sampling from spaces	P	CTO	C3	—	P	P	—
06150000	Type production processes	—	—	—	—	—	—	—
07000000	MACHINERY INSTALLATIONS							
07010000	Shafting:	—	—	—	—	P	P	P
07010007	shafting connecting bolts	—	—	C3	—	P	—	—
07010008	propeller shaft cone sealings	—	—	—	—	P	—	—
07010009	CPP-shaft flange connection sealings	—	—	—	—	P	—	—
07010100	thrust shafts	P	—	C	K	P	—	—
07010200	intermediate shafts	P	—	C	K	P	—	—
07010300	propeller shafts	P	—	C	K	P	—	—
07010301	propeller shaft liners	P	—	C	—	P	—	—

1	2	3	4	5	6	7	8	9
07010400	thrust bearings	P	—	C3	—	P	P	P
07010500	journal bearings	P	—	C3	—	P	P	P
07010600	shaft couplings	P	—	C3	—	P	P	P
07020000	Stern tubes:	—	—	—	—	P	P	P
07020100	tubes	P	—	C3	K	P	—	—
07020200	stem bearings, including strut bearings	P	—	C3	—	P	—	—
07020300	seals	P	—	C3	—	P	P	P
07020301	sealing components (collars, rings)	P	—	C3	—	—	—	—
07020302	packing gland	P	CTO	CTO	—	—	—	—
07020303	pneumatic stop	P	—	C3	—	—	—	—
07030000	Propellers:							
07030100	fixed-pitch propellers:	P	—	C	K	P	P	P
07030101	bosses	P	—	C3	K	P	—	—
07030102	blades	P	—	C3	K	P	—	—
07030103	blade securing items	P	—	C3	K	P	—	—
07030200	controllable pitch propellers:	P	—	C	K	P	P	P
07030201	boss	P	—	C3	K	P	—	—
07030202	blades	P	—	C3	K	P	—	—
07030203	blade securing items	P	—	C3	K	P	—	—
07030204	crankpin rings	P	—	C3	K	—	—	—
07030205	crosshead	P	—	C3	K	—	—	—
07030206	slide block	—	—	—	—	—	—	—
07030207	hydraulic cylinder	P	—	C3	K	—	—	—
07030208	CPP blade sealing	P	—	C3	—	—	—	—
07030210	power hydraulic system	P	—	C3	—	P	—	—
07030212	CPP control system	P	—	C3	—	P	P	P
07030220	pitch changing mechanism:	P	—	C3	K	P	P	P
07030221	pitch changing mechanism shaft, oil transfer block shaft	P	—	C3	K	—	—	—
07030222	hydraulic cylinder	P	—	C3	K	—	—	—
07030223	piston and securig items	P	—	C3	K	—	—	—
07030224	push-pull rods	P	—	C3	K	—	—	—
07030225	pitch changing mechanism control equipment (actuating)	P	—	C3	—	P	P	P
07030300	voith-schneider propellers:	P	—	C	K	P	P	P
07030301	propeller housing	—	—	—	—	—	—	—
07030302	rotor casing	—	—	—	—	—	—	—
07030303	rotor shaft	P	—	C3	K	—	—	—
07030304	blade	P	—	C3	K	—	—	—
07030305	central support	P	—	C3	K	—	—	—
07030306	control lever	P	—	C3	K	—	—	—
07030307	gears and pinions	P	—	C3	K	—	—	—
07030308	driving shaft	P	—	C3	K	—	—	—
07030400	Steerable propellers:	P	CTO ²	C	K	P	P	P
07030401	propeller	P	—	C	K	P	—	—
07030402	shafts	P	—	C3	K	—	—	—
07030403	pinions	P	—	C3	K	—	—	—
07030404	housings	P	—	C3	—	—	—	—
07030406	couplings	P	—	—	—	—	—	—
07030407	propeller shaft seals	P	—	C3	—	—	—	—
07030408	steerable propeller housing sealing	P	—	C3	—	—	—	—
07030409	thrust bearings	P	CTO ²	C3	—	—	—	—
07030410	journal bearings	P	CTO ²	C3	—	—	—	—
07030411	control system	P	—	C3	—	—	—	—
07030500	Thrusters	P	—	C3	K	P	P	P
07040000	Dampers	P	—	C3	—	P	—	—
07050000	Glands in bulkheads or decks of cargo pump rooms for pump and fan drive shafts	P	—	C3	—	P	P	—
07150000	Type production processes	—	—	—	—	—	—	—
08000000	SYSTEMS AND PIPING							
08010000	Ship's systems:							
08010100	bilge system	—	—	—	—	P	P	—
08010200	ballast system	—	—	—	—	P	P	—
08010300	heel and trim systems	—	—	—	—	P	P	—
08010400	sewage water system	—	—	—	—	P	P	—
08010500	scupper pipe system	—	—	—	—	P	P	—
08010600	heating systems of fuel and lubrication oil tanks, ballast water tanks, cargo heating systems	—	—	—	—	P	P	—

1	2	3	4	5	6	7	8	9
	for oil tankers, side fittings above the waterline on icebreakers and ships with ice strengthening							
08010610	chemical carrier cargo temperature control	—	—	—	—	P	P	—
08010620	gas carrier cargo pressure and temperature control	—	—	—	—	P	P	—
08010700	ventilation system	—	—	—	—	P	P	—
08010800	air, overflow and sounding pipes	—	—	—	—	P	P	—
08010850	venting and cargo vapour emission	—	—	—	—	P	P	—
08010900	hydraulic drives of machinery and equipment	—	—	—	—	P	P	—
08011000	voice pipes	—	—	—	—	P	—	—
08011100	cargo systems of chemical carriers, gas carriers and oil tankers	—	—	—	—	P	P	—
08011150	oil skimming system on oil skimming ships	—	—	—	—	P	P	—
08011200	compressed air for tyfon, bottom and side fitting blowing, instruments and fittings of air-controlled automation systems	—	—	—	—	P	P	—
08011300	Fuel oil system for domestic purposes:	—	—	—	—	P	P	—
08011310	equipment of the fuel oil system for domestic purposes	P	CTO	C3	—	P	P	—
08011400MK	Inert gas system:	—	—	—	—	P	P	—
08011410MK	inert gas generator	P	CTO	C3	—	P	P	—
08011420MK	water seal of the inert gas system	P	—	C3	—	P	P	—
08011430MK	scrubber of the inert gas system	P	CTO	C3	—	P	P	—
08011440MK	instruments and alarms of the inert gas system	P	CTO	C3	—	P	P	—
08011450MK	nitrogen generator of the inert gas system	P	CTO	C3	—	P	P	—
08011460MK	air compressor for the nitrogen generator	P	—	C3	—	P	P	—
08011470MK	nitrogen receiver	P	—	C3	—	P	P	—
08020000	Systems of machinery installations:							
08020100	oil fuel system	—	—	—	—	P	P	P
08020110	fuel treatment	P	—	C3	—	P	P	P
08020200	lubricating oil system	—	—	—	—	P	P	P
08020300	cooling water system	—	—	—	—	P	P	P
08020400	compressed air system	—	—	—	—	P	P	—
08020500	venting system	—	—	—	—	P	P	P
08020600	steam piping and blow-off system	—	—	—	—	P	P	—
08020700	condensate and feed water system	—	—	—	—	P	P	—
08020800	thermal oil system	—	—	—	—	P	P	—
08030000	Fittings:							
08030100	Class I and Class II pipes fittings	P	CTO	C3	—	—	—	—
08030200	Class III pipes fittings:	P	CTO	C3	—	—	—	—
08030210	class III pipes fittings, $D_y > 100$ mm	P	—	C3	—	—	—	—
08030220	class III pipes fittings, $D_y \leq 100$ mm	P	—	CTO	—	—	—	—
08030230	bottom and side fittings	P	CTO	C3	—	P	—	—
08030240	remote-controlled fittings	P	CTO	C3	—	—	—	—
08030300	formed components of pipes and pipelines	P	—	CTO	—	—	—	—
08030400MK	type A ventilation fire dampers	P	CTO	CTO	—	P	P	—
08030410	ventilation fire dampers	—	—	CTO	—	P	P	—
08030500MK	tank venting and cargo vapour emission systems	P	CTO	C3	—	—	—	—
08030510MK	automatic closing devices for air pipes	P	CTO	CTO	—	P	P	—
08030600	Flexible joints	P	CTO	C3	—	—	—	—
08030700	Expansions pieces and mechanical connections of pipes:	P	CTO	CTO	—	P	—	—
08030710	mechanical connections of pipes	P	CTO	CTO	—	P	—	—
08030720	expansion pieces	P	—	CTO	—	P	—	—
08030800MK	Cargo hoses of chemical and gas carriers	P	CTO	C3	—	P	—	—
08030900	Cargo hoses of oil tankers	P	CTO	C3	—	P	—	—
08031000	Oil fuel and lubricating oil receiving/transfer hoses	P	CTO	C3	—	—	—	—
08031100	Appliances and systems for oil product transfer afloat and from a point berth	P	CTO	C3	—	P	P	—
08031110	Cargo vapour transfer hoses	P	CTO	C3	—	P	—	—
08031200	Dangerous goods leakage detectors:							
08031210	chemical cargo contained in ballast water	—	CTO	C3	—	P	P	—
08031220	cargo contained in heating steam condensate	—	CTO	C3	—	P	P	—
08031230	gas analyzer for detection of flammable and toxic vapours of liquid and gaseous cargoes	—	CTO	C3	—	P	P	—
08031300	Sleeves for hoses according to codes 08030800, 08030900, 08031000 and 08031100	P	CTO	CTO	—	—	—	—
08040000	Spark arresters (spark extinguishers), dampers of exhaust gas systems, boiler and incinerator uptakes	P	CTO ²	C3	—	P	P	P

1	2	3	4	5	6	7	8	9
08050000	Sea water system of self-elevating MODU	—	—	—	—	P	P	P
08060000	Purging and water filling system of MODU leg tanks	—	—	—	—	P	P	P
08070000	MODU marine riser tightening and rolling compensation system	—	—	—	—	P	P	P
08080000	Hydraulic drive system of jacking arrangements of self-elevating MODU	—	—	—	—	P	P	P
08090000	Hydraulic drive system of arrangement for lifting and lowering columns of submersible sea water pumps of MODU	—	—	—	—	P	P	P
08100000	MODU ventilation system of enclosed spaces maintained in overpressure	—	—	—	—	P	P	—
08110000	MODU drilling mud emergency discharge system	—	—	—	—	P	P	—
08150000	Type production processes	—	CTO	—	—	—	—	—
09000000	MACHINERY							
09010000	Main and auxiliary internal combustion engines of power output 55 kW and over:	P	—	C ³	K	P	P	P
09010001	bed plates	P	—	C3	K	—	—	—
09010002	crankcases	P	—	C3	K	—	—	—
09010003	bed plates, columns	P	—	C3	K	—	—	—
09010004	cylinder blocks	P	—	C3	K	—	—	—
09010005	cylinder liners	P	—	C3	K	—	—	—
09010006	cylinder covers	P	—	C3	K	—	—	—
09010007	inlet and outlet valve housings	P	—	C3	K	—	—	—
09010008	tie rods	P	—	C3	K	—	—	—
09010009	pistons (heads and trunks)	P	—	C3	K	—	—	—
09010010	piston pins	P	—	C3	—	—	—	—
09010011	piston rods	P	—	C3	K	—	—	—
09010012	connecting rods	P	—	C3	K	—	—	—
09010013	crossheads	P	—	C3	K	—	—	—
09010014	crankshafts	P	—	C3	K	—	—	—
09010015	crankshaft detachable couplings	P	—	C3	—	—	P	P
09010016	crankcase safety valves	P	CTO	C3	—	—	P	P
09010017	inlet and outlet valves	P	—	C3	—	—	P	P
09010018	camshaft	P	—	C3	—	—	P	P
09010019	air receivers safety valves	P	CTO ²	C3	—	P	—	—
09011600	bearings:							
09011601	main bearings	P	—	C3	—	—	—	—
09011602	bottom-end bearings	P	—	C3	—	—	—	—
09011603	top-end bearings	P	—	C3	—	—	—	—
09011604	crosshead bearings	P	—	C3	—	—	—	—
09011605	of camshafts	P	—	C3	—	—	—	—
09011606	thrust	P	—	C3	—	—	—	—
09011700	securing items:							
09011701	bolts and studs of main bearings	P	—	C3	K	P	—	—
09011702	bolts and studs of bottom-end bearings	P	—	C3	K	P	—	—
09011703	bolts and studs of cylinder covers	P	—	C3	K	P	—	—
09011704	bolts and studs of crossheads	P	—	C3	K	P	—	—
09011705	bolts and studs of counterweights and torsional vibration dampers	P	—	C3	K	P	—	—
09011800	gears:							
09011801	gearing	P	—	C3	—	—	—	—
09011802	chain gear	P	—	C3	—	—	—	—
09011900	Oil fuel equipment:							
09011901	high pressure oil fuel injection pumps	P	CTO ²	C3	—	—	P	P
09011902	fuel valves	P	CTO ²	C3	—	—	P	P
09011903MK	high pressure oil fuel injection pipes	P	CTO ²	C3	—	—	P	P
09011904	pump elements	P	CTO ²	C3	—	—	P	P
09011905	sprayers	P	CTO ²	C3	—	—	P	P
09012200	Speed governors	P	CTO ²	C3	K	—	P	P
09012300	Overspeed devices	P	CTO ²	C3	K	—	P	P
09012400	Dampers and shock absorbers	P	CTO ²	C3	K	—	P	P
09013000MK	Rescue boat engines	P	CTO	C3	K	—	P	P
09014000MK	Lifeboat engines	P	CTO	C3	K	P	P	P
09015000	Diesel-generators	P	CTO	C3	K	P	P	P
09016000	Diesel-engine geared set	P	CTO	C3	K	P	P	P
09017000MK	Diesel engines complying with Regulation 13 of Annex VI of MARPOL 73/78 and the requirements of the Technical Code on control of emission of nitrogen oxides from marine diesel engines	P	EIAP	EIAP	—	P	—	—

1	2	3	4	5	6	7	8	9
09020000	Internal combustion engines of power output below 55 kW (drives of generators, fire pumps, compressors, engines of lifeboats and rescue boats):	P	—	C3	K	P	P	P
09020100	auxiliary engines	P	CTO	C3	K	P	P	P
09020200MK	lifeboat engines	P	CTO	C3	K	P	P	P
09020008	speed governors, overspeed devices	P	CTO ²	C3	—	—	P	P
09023000MK	rescue boat engines	P	CTO	C3	K	—	P	P
09024000	Diesel-generators	P	CTO	C3	K	P	P	P
09025000	Diesel-engine geared set	P	CTO	C3	K	P	P	P
09030000	Main steam turbines and electric generator turbines:	P	CTO	C	K	P	P	P
09030001	turbine casings	P	—	C3	K	—	—	—
09030002	nozzle boxes	P	—	C3	K	—	—	—
09030003	manoeuvring gear casings	P	—	C3	K	—	—	—
09030004	nozzles	P	—	C3	—	—	—	—
09030005	diaphragms	P	—	C3	K	—	—	—
09030006	discs	P	—	C3	K	—	—	—
09030007	blades	P	—	C3	—	—	—	—
09030008	gland seals	P	—	C3	—	—	—	—
09030009	rotors and shafts	P	—	C3	K	—	—	—
09030010	bearings	P	—	C3	—	—	—	—
09030011	couplings	P	—	C3	—	—	—	—
09030012	shrouds and lashing wire	P	—	C3	—	—	—	—
09030013	bolts for split casing joints	P	—	C3	—	—	—	—
09040000	Steam auxiliary turbines:	P	CTO	C3	—	P	P	P
09040001	turbine casings	P	—	C3	—	—	—	—
09040002	nozzle boxes	P	—	C3	—	—	—	—
09040003	nozzles	P	—	C3	—	—	—	—
09040004	discs	P	—	C3	—	—	—	—
09040005	blades	P	—	C3	—	—	—	—
09040006	rotors and shafts	P	—	C3	—	—	—	—
09040007	bearings	P	—	C3	—	—	—	—
09050000	Main gas turbines and electric generator gas turbines:	P	CTO	C3	K	P	P	P
09050001	turbine casings	P	—	C3	K	—	—	—
09050002	compressor housings	P	—	C3	K	—	—	—
09050003	combustion chamber casings	P	—	C3	K	—	—	—
09050004	diaphragms	P	—	C3	—	—	—	—
09050005	turbine rotors	P	—	C3	K	—	—	—
09050006	turbine discs	P	—	C3	—	—	—	—
09050007	compressor rotors	P	—	C3	K	—	—	—
09050008	compressor discs	P	—	C3	—	—	—	—
09050009	turbine blades	P	—	C3	—	—	—	—
09050010	compressor blades	P	—	C3	—	—	—	—
09050011	shrouds, lashing wire	P	—	C3	—	—	—	—
09050012	flame tube of combustion chambers	P	—	C3	—	—	—	—
09050013	regenerators	P	—	C3	—	—	—	—
09050014	gland seals	P	—	C3	—	—	—	—
09050015	bearings	P	—	C3	—	—	—	—
09050016	couplings	P	—	C3	—	—	—	—
09050017	bolts for turbine split casing joints	P	—	C3	—	—	—	—
09050018	bolts for compressors split casing joints	P	—	C3	—	—	—	—
09060000	Main machinery reduction gear:	P	CTO ²	C3	K	P	P	P
09060001	reduction gear casing	P	—	C3	K	—	—	—
09060002	wheels and pinions	P	—	C3	K	—	—	—
09060003	reduction gear shafts	P	—	C3	K	—	—	—
09060004	detachable half-couplings of shafts	P	—	C3	—	—	—	—
09060005	bolts	P	—	C3	—	—	—	—
09060006	sliding bearings	P	—	C3	—	—	—	—
09060100	Disengaging, flexible couplings and other:	P	CTO	C3	K	P	P	P
09060101	coupling casing	P	—	C3	K	—	—	—
09060102	coupling shafts	P	—	C3	K	—	—	—
09060103	driving parts of couplings	P	—	C3	—	—	—	—
09060104	driven parts of couplings	P	—	C3	—	—	—	—
09060105	components of flexible couplings	—	—	C3	—	—	—	—
09060106	sliding bearings	P	—	C3	—	—	—	—

1	2	3	4	5	6	7	8	9
09070000	Auxiliary machinery reduction gear:	P	CTO ²	C3	—	P	P	P
09070001	casings of reduction gear and couplings	P	—	C3	—	—	—	—
09070002	wheels and pinions	P	—	C3	—	—	—	—
09070003	shafts of reduction gears and couplings	P	—	C3	—	—	—	—
09070004	bearings	P	—	C3	—	—	—	—
09080000	Auxiliary machinery:							
09080100	starting air compressors	P	CTO	C3	—	P	P	P
09080200	turbochargers	P	CTO ²	C3	—	P	P	P
09080300	main and auxiliary boiler blowers	P	CTO ²	C3	—	P	P	P
09080400	cooling water pumps of main engines and auxiliary machinery	P	CTO	C3	—	P	P	P
09080500	circulating pumps of main condensers	P	CTO	C3	—	P	P	P
09080600	lubricating oil pumps of main engines and turbines	P	CTO	C3	—	P	P	P
09080700	boiler feed water pumps	P	CTO	C3	—	P	P	P
09080800	condensate pumps	P	CTO	C3	—	P	P	P
09080900	boiler burner pumps	P	CTO	C3	—	P	P	P
09081000	fuel oil transfer pumps and fuel-feed pumps of main engines	P	CTO	C3	—	P	P	—
09081100	bilge pumps	P	CTO	C3	—	P	P	—
09081200	fire pumps	P	CTO	C3	—	P	P	—
09081300	fire motor-pumps	P	CTO	C3	—	P	P	—
09081400	ballast pumps	P	CTO	C3	—	P	P	—
09081500	cargo pumps	P	CTO	C3	—	P	—	—
09081600	steam-jet ejectors of condensers	P	CTO	C3	—	P	P	P
09081700	circulating pumps of waste-heat boilers	P	CTO	C3	—	P	P	P
09081800	oil fuel and lubricating oil separators	P	CTO	C3	—	P	P	P
09081900	bilge ejectors	P	CTO	C3	—	P	P	—
09090000	Parts of machinery listed under 09080000:							
09090100	piston pumps and compressors:							
09090101	cylinder blocks	—	—	C3	—	—	—	—
09090102	cylinder liners	—	—	C3	—	—	—	—
09090103	pistons	—	—	C3	—	—	—	—
09090104	piston rods	—	—	C3	—	—	—	—
09090105	connecting rods	—	—	C3	—	—	—	—
09090106	crankshafts	—	—	C3	—	—	—	—
09090200	centrifugal and rotary pumps and compressors:							
09090201	shafts	—	—	C3	—	—	—	—
09090202	impellers, rotors	—	—	C3	—	—	—	—
09090203	casings	—	—	C3	—	—	—	—
09090300	screw and gear pumps and compressors:							
09090301	shafts, screws	P	—	C3	—	—	P	P
09090302	casings	P	—	C3	—	—	P	P
09090303	screw pump housing	P	—	C3	—	—	P	P
09090304	pinions	P	—	C3	—	—	P	P
09090400	oil fuel and lubricating oil separators:							
09090401	bowl bodies, shafts	P	—	C3	—	—	P	P
09090402	bowl discs	P	—	C3	—	—	P	P
09090403	pinions	P	—	C3	—	—	P	P
09090500	gas turbochargers and blowers:							
09090501	shafts and rotors	—	—	C3	—	—	—	—
09090502	gland seals	—	—	C3	—	—	—	—
09090503	casings	—	—	C3	—	—	—	—
09090504	bearings	—	—	C3	—	—	—	—
09100000	Deck machinery:							
09100100MK	steering gear (engines):	P	CTO	C3	K	P	P	P
09100101	rudder stock yoke	P	—	C3	—	—	—	—
09100102	cylinders	P	—	C3	—	—	—	—
09100103	driven shafts	P	—	C3	—	—	—	—
09100104	pinions, wheels, tooth rims	—	—	C3	—	—	—	—
09100105	pistons with rods	P	—	C3	—	—	—	—
09100106	safety valves	P	—	C3	—	—	P	P
09100200	windlass and anchor capstans:							
09100201	intermediate and output shafts and spindles	P	—	C3	—	—	—	—
09100202	chain sprockets	—	—	C3	—	—	—	—
09100203	pinions, gears of power drives	—	—	C3	—	—	—	—
09100204	disengaging and safety clutches	—	—	C3	—	—	—	—
09100205	band and automatic brakes	—	—	C3	—	—	—	—

1	2	3	4	5	6	7	8	9
09100300	mooring capstans and winches:	P	CTO	C3	—	P	P	—
09100301	spindles, output shafts	P	—	C3	—	—	P	P
09100302	pinions, gears of power drives	P	—	C3	—	—	P	P
09100303	safety clutches	P	—	C3	—	—	P	P
09100304	automatic brakes	P	—	C3	—	—	P	P
09100400	towing winches:	P	CTO	C3	—	P	P	P
09100401	output and intermediate shafts	—	—	C3	—	—	—	—
09100402	pinions, gears of power drives	—	—	C3	—	—	—	—
09100403	rope tightening control devices, rope layers	—	—	C3	—	—	—	—
09100404	brakes	—	—	C3	—	—	—	—
09100500MK	boat winches:	P	CTO	C3	K	P	P	P
09100501	output and intermediate shafts	—	—	C3	—	—	—	—
09100502	pinions, gears of power drives	—	—	C3	—	—	—	—
09100503	automatic and hand brakes	—	—	C3	—	—	—	—
09100504	stoppers	—	—	C3	—	—	—	—
09110000	Mechanical telegraphs	P	CTO	C3	—	P	P	P
09120000	Fans of machinery spaces, enclosed spaces and hold fitted for carriage of vehicles, refrigerated spaces, foam and smothering fire extinction stations, cargo pump rooms, helicopter sheds, holds fitted for carriage of dangerous goods, storage battery rooms and trunks	P	CTO	C3	K	P	P	P
09130000	Motors and pumps of hydraulic systems:	P	CTO	C3	K	P	P	P
09130001	shafts, rotors, pinions	—	—	C3	—	—	—	—
09130002	rods	—	—	C3	—	—	—	—
09130003	pistons, plungers	—	—	C3	—	—	—	—
09130004	casings	—	—	C3	—	—	—	—
09130005	hydraulic cylinders	—	—	C3	—	—	—	—
09140000	Thruster machinery	P	CTO	C3	K	P	P	P
09150000	Sea water submersible pumps	P	CTO	C3	K	P	P	—
09160000	Drives of MODU jacking arrangements:	P	—	C3	K	P	P	P
09160100	hydraulic cylinders in assembly	P	—	C3	K	—	—	—
09160101	cylinders and covers	P	—	C3	K	—	—	—
09160102	pistons with rods	P	—	C3	K	—	—	—
09160103	yokes for securing hydraulic cylinders	P	—	C3	K	—	—	—
09160104	securing items	—	—	C3	—	P	—	—
09170000	Winches of MODU lifting and lowering columns of submersible sea water pumps:	P	—	C3	K	P	P	—
09170001	output and intermediate shafts	P	—	C3	—	—	—	—
09170002	wheels and pinions	P	—	C3	—	—	—	—
09170003	brakes	P	—	C3	—	—	—	—
09180000	Fans of MODU dangerous spaces and enclosed spaces maintained in air overpressure	P	—	C3	K	P	P	P
09200000	Type production processes	—	—	—	—	—	—	—
10000000	BOILERS, HEAT EXCHANGERS AND PRESSURE VESSELS							
10000100	Steam generating units	P	—	C3	K	P	P	P
10010000	Boilers, including waste-heat and water heating boilers:	P	CTO	C3	K	P	P	P
10010003	shells	P	—	C3	—	—	—	—
10010004	end plates	P	—	C3	—	—	—	—
10010006	water chambers	P	—	C3	—	—	—	—
10010007	combustion chambers	P	—	C3	—	—	—	—
10010008	furnaces	P	—	C3	—	—	—	—
10010009	boiler stays	P	—	C3	—	—	—	—
10010011	economizers	P	—	C3	—	—	—	—
10010012	steam accumulators (steam separators)	P	—	C3	K	P	P	P
10010100	shells	P	—	C3	—	—	—	—
10010200	drums	P	—	C3	—	—	—	—
10010500	headers	P	—	C3	—	—	—	—
10011000	oil burning equipment	P	—	C3	—	P	P	P
10011300	steam superheaters	P	—	C3	—	—	—	—
10011400	air heaters	—	—	C3	—	—	—	—
10020000	Heat exchangers and pressure vessels:							
10020100	boiler feed water heaters	P	CTO	C3	—	P	P	P
10020101	deaerators	P	CTO	C3	—	P	P	P

1	2	3	4	5	6	7	8	9
10020200	condensers of main turbines	P	—	C	—	P	P	P
10020201	condensers of electric generator turbines	P	—	C3	—	P	P	P
10020300	condensers of auxiliary steam turbines	P	—	C3	—	P	P	—
10020400	distillers	P	CTO	CTO	—	P	—	P
10020500	heaters:							
10020501	oil fuel heaters	P	CTO	C3	—	P	P	—
10020502	lubricating oil heaters	P	CTO	C3	—	P	P	—
10020503	water heaters	P	CTO	C3	—	P	P	—
10020600	coolers:							
10020601	lubricating oil coolers of main machinery	P	CTO ²	C3	—	P	P	P
10020602	water coolers of main machinery	P	CTO ²	C3	—	P	P	P
10020603	lubricating oil coolers of auxiliary machinery	P	CTO ²	C3	—	P	P	P
10020604	water coolers of auxiliary machinery	P	CTO ²	C3	—	P	P	P
10020700	filters:							
10020701	oil fuel filters	P	CTO ²	C3	—	P	P	—
10020702	lubricating oil filters	P	CTO ²	C3	—	P	P	—
10020703	water filters	P	CTO ²	C3	—	P	P	—
10020800	air bottles	P	—	C3	K	P	P	—
10020900	hydraulic accumulators	P	CTO ²	C3	—	P	P	—
10021000	hydrophores	—	CTO	—	—	—	P	—
10021100	pressure vessels and apparatus of fire-fighting systems	P	CTO ²	C3	K	P	P	—
10021200	pressure vessels and apparatus of domestic, production, research and other applications	—	CTO ²	C3	—	P	—	—
10030000	Fittings:							
10030100	fittings for boilers equal to or over 0,07 MPa	P	CTO	C3	—	—	—	—
10030200	fittings for pressure vessels and heat exchangers equal to or over 0,07 MPa, $D_y \geq 50$ mm	P	CTO	C3	—	—	—	—
10030300	safety valves	P	CTO	C3	—	P	P	—
10030400	pressure gauges	—	—	—	—	P	P	—
10040000	Pressure vessels for MODU marine riser tightening and rolling compensation system	—	—	C3	K	P	P	P
10100000	Type production processes	P	CTO	CTO	—	P	—	—
11000000	ELECTRICAL EQUIPMENT							
11010000	Electrical propulsion plant:	—	—	—	—	P	P	P
11010100	generators	P	CTO*	C	K	—	—	—
11010200	electric motors	P	CTO*	C	K	—	—	—
11010300	electromagnetic clutches	P	CTO*	C3	K	—	—	—
11010400	switchboards	P	CTO*	C	—	—	—	—
11010500	panels	P	CTO*	C	—	—	—	—
11020000	Main and emergency sources of electrical power:	—	—	—	—	P	P	P
11020100	generators:							
11020101	power of 100 kVA and over	P	CTO*	C	K	—	—	—
11020102	power less than 100 kVA	P	CTO*	C3	—	—	—	—
11020200	accumulators and accumulator batteries	P	CTO*	CTO	—	—	—	—
11020300	uninterrupted power supply:	—	—	—	—	—	—	—
11020301	power of 100 kVA and over	P	CTO	C	—	—	—	—
11020302	power less than 100 kVA	P	CTO	C3	—	—	—	—
11020400	other sources of electrical power	P	CTO*	C3	—	—	—	—
11030000	Transformers and convertors:	—	—	—	—	P	P	P
11030100	power transformers	P	CTO*	C	—	—	—	—
11030101	lighting transformers	P	CTO*	C	—	—	—	—
11030200	measuring and other transformers	P	CTO*	CTO	—	—	—	—
11030300	rotary convertors:	—	—	—	—	—	—	—
11030301	power of 100 kVA and over	P	CTO*	C	—	—	—	—
11030302	power less than 100 kVA	P	CTO	C3	—	—	—	—
11030400	rotary amplifiers:	—	—	—	—	—	—	—
11030401	power of 100 kVA and over	P	CTO	C	—	—	—	—
11030402	power less than 100 kVA	P	CTO	C3	—	—	—	—
11030500	static and semi-conductor convertors (rectifiers, inverters, frequency convertors) with rated current	—	—	—	—	—	—	—
11030501	rated current over 25 A	P	CTO*	C	—	—	—	—
11030502	rated current 25 A and less	P	CTO	C3	—	—	—	—
11040000	Switchboards and control and monitoring desks:	—	—	—	—	P	P	P
11040100	main switchboards	P	—	C	—	—	—	—
11040101	emergency switchboards	P	—	C	—	—	—	—

1	2	3	4	5	6	7	8	9
11040200	distribution and other switchboards	P	CTO	C3	—	—	—	—
11040300	navigation light switchboards	P	CTO	C3	—	—	—	—
11040400	desks:	—	—	—	—	P	P	P
11040401	control desks	P	CTO	C	—	—	—	—
11040402	monitoring desks	P	CTO	C	—	—	—	—
11040403	signalling desks	P	CTO	C	—	—	—	—
11040500	switchgear and control gear:							
11040502	switches	P	CTO	CTO	—	—	—	—
11040503	contactors, relays	P	CTO*	CTO	—	—	—	—
11040504	tripping devices	P	CTO	CTO	—	—	—	—
11040505	switches, limit switches	P	CTO	CTO	—	—	—	—
11040506	resistors and rheostats	P	CTO	CTO	—	—	—	—
11040600	protective devices:							
11040601	relays $I > 25$ A	P	CTO*	C3	—	—	—	—
11040602	relays $I \leq 25$ A	P	CTO	CTO	—	—	—	—
11040603	fuses $I > 25$ A	P	CTO	C3	—	—	—	—
11040604	fuses $I \leq 25$ A	P	CTO	CTO	—	—	—	—
11040605	complex protective devices	P	CTO*	C3	—	—	—	—
11040606	protective barriers of intrinsically safe circuits of Exi type	P	CTO*	CTO	—	—	—	—
11040607	circuit breakers $I \geq 25$ A	P	CTO*	C3	—	—	—	—
11040608	circuit breakers $I < 25$ A	P	CTO*	CTO	—	—	—	—
11040700	controllers:							
11040701	regulators $I > 25$ A	P	CTO*	C3	—	—	—	—
11040702	regulators $I \leq 25$ A	P	CTO	CTO	—	—	—	—
11040703	reactors	P	CTO*	CTO	—	—	—	—
11040704	power coefficient increase capacitors	P	CTO	C3	—	—	—	—
11040800	stationary electrical measuring instruments	P	CTO	CTO	—	—	—	—
11040900	busbars	P	CTO	CTO	—	—	—	—
11050000	Electric drives for machinery referred to in 09000000, 12000000, 14000000MK, 18050000 19000000MK as well as fishing vessel machinery and ships engaged in processing of living resources of the sea and not engaged in catching:	—	—	—	—	P	P	P
11050100	electric motors:							
11050101	electric motors with power output 50 kW and over	P	CTO*	C	K	—	—	—
11050102	electric motors with power output more than 20 kW and less 50 kW	P	CTO	C3	—	—	—	—
11050103	electric motors with power output up to 20 kW	P	CTO	CTO	—	—	—	—
11050200	starting devices:							
11050201	starters	P	CTO	C3	—	—	—	—
11050202	resistances and rheostats	P	CTO	CTO	—	—	—	—
11050204	controllers	P	CTO	C3	—	—	—	—
11050205	soft starters	P	CTO*	C3	—	—	—	—
11050300	electromagnetic brakes	P	CTO	CTO	—	—	—	—
11050400	electromagnetic clutches	P	CTO	CTO	—	—	—	—
11060000	Main and emergency lighting:							
11060001	stationary lighting fixtures, flood-light projectors	P	CTO	CTO	—	—	—	—
11060002	lighting fitting and accessories	P	CTO	CTO	—	—	—	—
11070000	Control and monitoring devices:							
11070100	electrical engine telegraphs	P	CTO*	C3	—	P	P	P
11070200	rudder angle indicators	P	CTO	CTO	—	P	P	P
11070300	CPP position indicator	P	CTO	CTO	—	P	P	P
11070400	tachometers	P	CTO	CTO	—	P	P	P
11070500	other monitoring devices (static electricity insulation, intrinsically-safe circuits, etc)	P	CTO	C3	—	P	P	P
11080000	Telephone service communication:							
11080100	commutators and telephone communication sets	P	CTO	CTO	—	—	—	—
11090000	General alarm system:							
11090001	visual and sound devices and switches	P	CTO	CTO	—	—	—	—
11100000	Fire detection system and warning alarm on fire smothering system release:							
11100100	indicating units of fire detection system	P	CTO*	C3	—	—	—	—
11100102	manual fire alarm buttons and detectors of fire detection system	P	CTO*	CTO	—	—	—	—
11100103	system components of warning alarm on fire smothering system release	P	CTO*	CTO	—	—	—	—

1	2	3	4	5	6	7	8	9
11100200	Warning systems of local fire-extinguishing system release for machinery space machinery:	P	CTO*	C3	—	P	P	P
11100201	switchboards, control and alarm panels	P	CTO*	C3	—	—	—	—
11100202	detectors and other components	P	CTO*	CTO	—	—	—	—
11100300	Alarm system of high-level of bilge water:	P	CTO	C3	—	P	P	P
11100301	switchboards, control and alarm panels	P	—	C3	—	—	—	—
11100302	detectors and other components	P	CTO	CTO	—	—	—	—
11100400	Engineer's alarm:	P	CTO	C3	—	P	P	P
11100401	switchboards, control and alarm panels	P	—	C3	—	—	—	—
11100402	detectors and other components	P	CTO	CTO	—	—	—	—
11100500	Alarm system of people presence inside refrigerated holds:	P	CTO	C3	—	P	P	P
11100501	switchboards, control and alarm panels	P	—	C3	—	—	—	—
11100502	detectors and other components	P	CTO	CTO	—	—	—	—
11100600	Alarm system of side port closures condition:	P	CTO*	C3	—	P	P	P
11100601	switchboards, control and alarm panels	P	CTO ²	C3*	—	—	—	—
11100602	detectors and other components	P	CTO*	CTO	—	—	—	—
11100700	Exterior/inner video monitoring system:	P	CTO*	C3	—	P	P	P
11100701	video cameras	P	CTO*	CTO	—	—	—	—
11100702	video terminals	P	CTO*	CTO	—	—	—	—
11100703	switchboards, control and alarm panels	P	CTO ²	C3*	—	—	—	—
11100704	detectors and other components	P	CTO*	CTO	—	—	—	—
11100800	Alarm system of explosive gas concentration increase in spaces and areas:	P	CTO*	C3	—	P	P	P
11100801	switchboards, control and alarm panels	P	CTO ²	C3*	—	—	—	—
11100802	detectors and other components	P	CTO*	CTO	—	—	—	—
11100900	Cargo holds and dry cargo ships water ingress detection system:	P	CTO*	C3	—	P	P	P
11100901	switchboards, control and alarm panels	P	CTO ²	C3*	—	—	—	—
11100902	detectors and other components	P	CTO*	CTO	—	—	—	—
11110000	Fire and watertight door signalling system:	P	CTO*	C3	—	P	P	P
11110001	components of fire and watertight door signalling system	P	CTO*	CTO	—	—	—	—
11120000	Machinery personnel alarm system	—	—	C3	—	P	P	P
11120001	Components of machinery personnel alarm system	P	CTO	CTO	—	—	—	—
11130000	Cabling:	—	—	—	—	P	P	P
11130100	cables and wires:	P	CTO*	C3	—	—	—	—
11130101	cables of supply circuits for voltage over 1000 V	P	CTO*	C3	—	—	—	—
11130102	cables of supply circuits for voltage below 1000 V	P	CTO*	C3	—	—	—	—
11130103	cables of control circuits and information transfer circuits	P	CTO*	C3	—	—	—	—
11130104	coaxial cables	P	CTO*	C3	—	—	—	—
11130105	optical-fiber cables	P	CTO*	C3	—	—	—	—
11130200	items and devices for installation, splicing and connection of cables and wires	P	CTO*	CTO	—	—	—	—
11140000	Lightening and earthing conductors, impressed current protection	P	CTO*	CTO	—	P	—	—
11150000	Heating and cooking appliances, stationary appliances:	—	—	—	—	P	P	P
11150001	oil fuel and lubricating oil heating appliances	P	CTO	C3	—	—	—	—
11150002	heating radiators for air-conditioning system	P	CTO	CTO	—	—	—	—
11150003	water heaters of 0,025 m ³ in capacity and pressure equal to or more than 0,07 MPa	P	CTO	C3	—	—	—	—
11150004	other stationary heating appliances	P	CTO	CTO	—	—	—	—
11150005	heating cables	P	CTO*	CTO	—	P	P	P
11160000	Radio interference filters	P	CTO	CTO	—	P	P	P
11170000	Special systems of oil tankers and gas carriers	—	—	—	—	—	—	—
11170100	Alarm system of temperature increase of bulkhead bearings of cargo and ballast pumps:	P	CTO*	C3	—	P	P	P
11170101	switchboards, control and alarm panels	P	CTO*	C3	—	—	—	—
11170102	detectors and other components	P	CTO*	CTO	—	—	—	—
11170200	Alarm system of cargo high and limiting level:	P	CTO*	C3	—	P	P	P
11170201	switchboards, control and alarm panels	P	CTO ²	C3*	—	—	—	—
11170202	detectors and other components	P	CTO*	CTO	—	—	—	—
11180000	Signalling on failures in MODU jacking system	—	CTO*	C3	—	P	P	P
11180001	switchboards, control and alarm panels	P	CTO ²	C3*	—	—	—	—

1	2	3	4	5	6	7	8	9
11180002	detectors and other components	P	CTO*	CTO	—	—	—	—
11190000	Housings for electrical items	P	CTO	CTO	—	—	—	—
11210000	Other electrical equipment	P	CTO	CTO	—	—	—	—
11220000	Type production processes	—	—	—	—	—	—	—
12000000	REFRIGERATING PLANTS							
12010000	Refrigerating units and machinery							
12010005	Parts of products specified in 12010000	P	—	C3	K	—	—	—
12010100	Compressors:							
12010110	screw type	P	CTO	C3	K	P	P	—
12010120	piston type	P	CTO	C3	K	P	P	—
12010130	centrifugal and axial-flow type	P	CTO	C3	K	P	P	—
12010200	Refrigerant pumps	P	CTO	C3	K	P	P	—
12010300	Secondary refrigerant pumps	P	CTO	CTO	—	P	P	—
12010400	Compressing and condensating units	P	CTO	C3	K	P	P	—
12010500	Ice generators	P	CTO	C3	K	P	P	—
12010600	Freezing units	P	CTO	C3	K	P	P	—
12010700	Air conditioners	P	CTO	CTO	—	P	P	—
12020000	Refrigerant pressure vessels:							
12020100	Refrigerant condensators	P	CTO ²	C3	—	P	P	—
12020200	Direct evaporation air coolers	P	CTO ²	C3	—	P	P	—
12020300	Brine air coolers	P	—	CTO	—	P	P	—
12020400	Refrigerant evaporators	P	CTO ²	C3	—	P	P	—
12020500	Refrigerant filters	P	CTO ²	C3	—	P	P	—
12020600	Oil separators	P	CTO ²	C3	—	P	P	—
12020700	Refrigerant receiver	P	—	C3	—	P	P	—
12020800	Refrigerant separator	P	—	C3	—	P	P	—
12050000	Piping and fittings:							
12050004	Fitting designed for pressure 1,0 MPa and more	P	CTO	CTO	—	P	P	—
12050100	Pipes of refrigerant, liquid secondary refrigerant and cooling water	—	—	—	—	P	P	—
12050200	Air pipes of cooling system	—	—	—	—	P	P	—
12050300	Safety devices and valves	P	CTO	C3	—	P	P	—
12050400	Solenoid valves	P	CTO	CTO	—	P	P	—
12050500	Manually operated valves	P	CTO	CTO	—	P	P	—
12060000	Safety devices	P	CTO	CTO	—	P	P	—
12070000	Automatic control devices	P	CTO	CTO	—	P	P	—
12070100	Thermostatic expansion valves	P	CTO	CTO	—	P	P	—
12070200	Thermostats	P	CTO	CTO	—	P	P	—
12070300	Bellows-actuated pressure switches	P	CTO	CTO	—	P	P	—
12080000	Atmosphere control devices	P	CTO	CTO	—	P	P	—
12090000	Materials for insulation of refrigerated spaces and pipes	P	CTO	CTO	—	P	P	—
12100000	Refrigerant	P	CTO	CTO	—	P	P	—
12110000	Refrigerant leak detectors	P	CTO	CTO	—	P	P	—
13000000	MATERIALS							
13100000	Steel and iron							
13110000	Rolled products:							
13110100	rolled products for ship and MODU structures as well as ship arrangements:							
13110101	plates and sheets	P	—	C3	K*	—	—	—
13110102	strips	P	—	C3	K*	—	—	—
13110103	sections	P	—	C3	K	—	—	—
13110104	bars	P	—	C3	K	—	—	—
13110105	welded sections	P	—	C3	K	—	—	—
13110200	rolled steel for boilers, heat exchangers and pressure vessels	P	—	C3	K	—	—	—
13110300	rolled stock for nuclear steam supply system (NSSS)	P	—	C3	K	—	—	—
13110400	rolled stock for MODU gears and machinery	P	—	C3	K	—	—	—
13120000	Tubes and pipes:							
13120100	tubes and pipes for Class I and Class II machinery, boilers, heat exchangers and pressure vessels:							
13120101	seamless	P	—	C3	—	—	—	—
13120102	welded	P	—	C3	—	—	—	—
13120200	tubes and pipes for Classes I, II and III piping:							
13120201	seamless	P	—	C3	—	—	—	—
13120202	welded	P	—	C3	—	—	—	—
13120300	tubes and pipes for NSSS:							
13120301	seamless	P	—	C3	K	—	—	—

1	2	3	4	5	6	7	8	9
13120302	welded	P	—	C3	K	—	—	—
13120400	constructional tubes and pipes of MODU gears and machinery:							
13120401	seamless	P	—	C	K	—	—	—
13120402	welded	P	—	C	K	—	—	—
13130000	Forgings:							
13130100	forgings for ship hull and MODU structures as well as ship arrangements:							
13130101	stems, bar keels, shafting struts	P	—	C3	K	—	—	—
13130102	rudder stocks and rudder nozzles	P	—	C3	K	—	—	—
13130200	forgings for boilers, heat exchangers, pressure vessels and for pipes of pipeline systems	P	—	C3	K	—	—	—
13130300	forgings for NSSS	P	—	C	K	—	—	—
13130400	forgings for MODU gears and machinery	P	—	C	K	—	—	—
13130500	forgings for ship machinery and machinery installations:							
13130501	forgings for propellers and CPP (bosses and blades)	P	—	C	K	—	—	—
13130502	forgings for crankshafts of internal combustion engines of power output over 55 kW	P	—	C	K	—	—	—
13130503	forgings for propeller, intermediate and thrust shafts	P	—	C	K	—	—	—
13130504	forgings for connecting rods, rods, pistons, crossheads of internal combustion engines of power output over 55 kW	P	—	C3	K	—	—	—
13130505	forgings for casings, disks, rotors and shafts of main turbines and compressors	P	—	C	K	—	—	—
13130506	forgings for gears, pinions and shafts of main machinery transmissions	P	—	C3	K	—	—	—
13130507	forgings for tillers, quadrants, part of rudders and rudder nozzles	P	—	C3	K	—	—	—
13140000	Castings:							
13140100	castings for ship hull and MODU structures as well as ship arrangements:							
13140101	castings for stems, bar keels, shafting struts	P	—	C3	K	—	—	—
13140102	castings for rudder stocks and rudder nozzles	P	—	C3	K	—	—	—
13140200	castings for boilers, heat exchangers, pressure vessels and for pipes of pipeline systems	P	—	C	K	—	—	—
13140300	castings for NSSS	P	—	C	K	—	—	—
13140400	castings for MODU gears and machinery	P	—	C	K	—	—	—
13140500	castings of machinery and machinery installations:							
13140501	castings for propellers and CPP (bosses and blades)	P	—	C	K	—	—	—
13140502	castings for crankshafts of internal combustion engines of power output over 55 kW	P	—	C	K	—	—	—
13140503	castings for propeller, intermediate and thrust shafts	P	—	C3	K	—	—	—
13140504	castings for connecting rods, rods, pistons, crossheads of internal combustion engines of power output over 55 kW	P	—	C3	K	—	—	—
13140505	castings for casings and shafts of main turbines and compressors	P	—	C	K	—	—	—
13140506	castings for gears, pinions and shafts of main machinery transmissions	P	—	C	K	—	—	—
13140507	castings for tillers, quadrants, parts of rudders and rudder nozzles	P	—	C3	K	—	—	—
13150000	steel for chains	P	—	C3	—	—	—	—
13200000	Aluminium, titanium and cooper alloys:							
13210000	rolled products for ship hull and MODU structures and ship arrangements	P	—	C3	K	—	—	—
13220000	pipes and tubes	P	—	C3	—	—	—	—
13230000	forgings	P	—	C3	K	—	—	—
13240000	castings	P	—	C3	K	—	—	—
13240100	casings for propellers and CPP	P	—	C	K	—	—	—
13300000	Non-metal materials:							
13310000	materials for reinforced plastic structures							
13310100	reinforcing materials	P	CTO	CTO	—	—	—	—

1	2	3	4	5	6	7	8	9
13310200	binders	P	CTO	CTO	—	—	—	—
13320000	laminated textiles	P	CTO	CTO	—	—	—	—
13330000	retro-reflective materials	P	CTO	CTO	—	—	—	—
13340000	foam plastics	P	CTO	CTO	—	—	—	—
13350000	polymeric compositions	P	CTO	CTO	—	—	—	—
13360000	anticorrosive coatings of hull structures	P	CTO	CTO	—	P	—	—
13370000MK	antifouling coatings of ship's hulls	P	CTO	CTO	—	P	—	—
13400000	Anchor and mooring chain cables and accessories	P	—	C3	K	P	P	P
13500000	Ropes:							
13510000	wire ropes	P	—	C3	K	—	—	—
13520000	ropes of natural and synthetic fibre	P	CTO	CTO	K	—	—	—
13600000	Plastic pipes and accessories	P	CTO	CTO	—	—	—	—
13700000	Type production processes	—	—	—	—	—	—	—
14000000	WELDING CONSUMABLES							
14100000	Electrodes:							
14100100	electrodes for ships hull and MODU structures	P	COCM	COCM	—	—	—	—
14100200	electrodes for boilers, heat exchangers and pressure vessels	P	COCM	COCM	—	—	—	—
14100300	electrodes for Class I, Class II and Class III piping	P	COCM	COCM	—	—	—	—
14100400	electrodes for nuclear steam supply systems	P	COCM	COCM	—	—	—	—
14100500	electrodes for machinery, devices, equipment and welded parts of internal combustion engines	P	COCM	COCM	—	—	—	—
14200000	Wire/flux:							
14200100	wire/flux for ship hull MODU structures	P	COCM	COCM	—	—	—	—
14200200	wire/flux for boilers, heat exchangers and pressure vessels	P	COCM	COCM	—	—	—	—
14200300	wire/flux for Class I, Class II and Class III piping	P	COCM	COCM	—	—	—	—
14200400	wire/flux for nuclear steam supply systems	P	COCM	COCM	—	—	—	—
14200500	wire/flux for machinery, equipment and welded parts of internal combustion engines	P	COCM	COCM	—	—	—	—
14300000	Wire/gas:							
14300100	wire/gas for hull structures of ships and MODU	P	COCM	COCM	—	—	—	—
14300200	wire/gas for boilers, heat exchangers and pressure vessels	P	COCM	COCM	—	—	—	—
14300300	wire/gas for Class I, II and Class III piping	P	COCM	COCM	—	—	—	—
14300400	wire/gas for nuclear steam supply systems	P	COCM	COCM	—	—	—	—
14300500	wire/gas for machinery, equipment and welded parts of internal combustion engines	P	COCM	COCM	—	—	—	—
14400000	Protective primers allowing to weld without their removal	P	CTO	CTO	—	—	—	—
14500000	Type production processes	P	COTIIC	COTIIC	—	—	—	—
14000000MK	CARGO HANDLING GEAR							
14010000MK	Ship derricks:							
14010100MK	structures with fixed gear (masts, columns, gantries, etc.)	—	—	—	—	P	P	—
14010200MK	derrick booms	P	—	C	K	P	P	—
14010300MK	cargo winches, span winches and slewing guy winches; span rope reels and preventer guy reels with drive:	P	—	C	K	P	P	—
14010301	main shafts	P	—	C3	—	—	—	—
14010302	couplings	P	—	C3	—	—	—	—
14010303	frames and casings	P	—	C3	—	—	—	—
14010304	brakes	P	—	C3	—	—	—	—
14010305	ratchets	P	—	C3	—	—	—	—
14010400MK	span rope reels and preventer guy reels without independent drive	P	—	C3	—	—	—	—
14030000MK	Cranes and hoists, upper structures:	P	CTO	C	K	P	P	—
14030100MK	structures of cranes and hoists with permanently attached fixed gear (masts, posts, bell-shaped structures, bridges, gantries, understructures, rocking arms and pull rods of adjustable counterweights, etc.)	—	—	—	—	P	P	—
14030200MK	jibs	P	—	C	K	P	P	—
14030300MK	cargo lifting, luffing, slewing, travelling motion or counterbalance machinery:	P	—	C	—	P	P	—
14030301	main shafts	P	—	C3	—	—	—	—

1	2	3	4	5	6	7	8	9
14030302	couplings	P	—	C3	—	—	—	—
14030303	frames and casings	P	—	C3	—	—	—	—
14030304	brakes	P	—	C3	—	—	—	—
14030305	wheels, rollers	P	—	C3	—	—	—	—
14030306MK	adjustable counterbalances	P	—	C3	—	—	—	—
14030307	hydraulic cylinders	P	—	C3	—	—	—	—
14030308	power hydraulic cylinders	P	—	C3	—	—	—	—
14030309	flexible joints	P	—	C3	—	—	—	—
14030400MK	safety devices (SWL indicators, limit-load switches, hi-jacking devices, limit switches, jib-radius indicators, safety switches, signal devices)	P	CTO	C3	—	P	P	—
14030500MK	metal upper structures: posts, frames, supporting assemblies (jib and axles, etc.), trolleys, jibs, counterbalance attachments and other structures	—	—	—	—	P	P	—
14030600MK	fastenings and supports of derrick when stowed for sea	P	—	—	—	P	P	—
14030700MK	devices damping dynamic loads, stability of derrick against jack-knifing with the ship rolling or load drop	P	—	C	—	P	P	—
14040000MK	Passenger and cargo lifts with lifting capacity 250 kg and over:	P	CTO	C	K	P	P	P
14040100MK	metal structures with all loose gear	—	—	—	—	P	—	—
14040200MK	lift winches:	P	CTO	C	K	P	P	P
14040201	main shafts	P	—	C3	—	—	—	—
14040202	couplings	P	—	C3	—	—	—	—
14040203	frames and casings	P	—	C3	—	—	—	—
14040204	brakes	P	—	C3	—	—	—	—
14040300MK	lift equipment (trunk doors, counterbalances, buffers, safety devices, etc.)	P	—	C3	—	P	P	—
14050000MK	Parts and ropes of cargo handling gear:							
14050100MK	interchangeable components:							
14050101MK	blocks, pulleys, hooks, chains, swivels, shackles, turnbuckles, triangle plates, boom and suspensions, etc.	P	CTO	C3	K	P	P	—
14050102MK	thimbles, ropes sockets and pressed clips	P	CTO	C3	—	—	P	—
14050200MK	fixed gear:							
14050201MK	cargo runner and span eye plates, guy eye plates on boom ends	P	CTO	C3	—	P	P	—
14050202MK	deck eye plates on ship hull structures	P	CTO	C3	—	P	P	—
14050203MK	derrick hel fork lugs	P	CTO	C3	—	P	P	—
14050204MK	span eye plates with shoes	P	CTO	C3	—	P	P	—
14050205MK	heel goosenecks with shoes	P	CTO	C3	—	P	P	—
14050206MK	built in sheaves with strops	P	CTO	C3	—	P	P	—
14050208MK	journals, bearing axles	P	CTO	C3	—	—	P	—
14050300MK	loose gear being part of the ship (slings, spreaders, hoisting crossbars, frames, etc.)	P	—	C3	K	P	P	—
14050400MK	ropes (shrouds, stays, cargo runners, span ropes, tackles and slewing guy pendants, preventer guys and boom head guys in union purchase, etc.)	P	—	C3	—	P	P	—
14060000MK	Ship elevating platforms:	P	CTO	C	K	P	P	—
14060100MK	platforms	P	—	C3	—	P	P	—
14060200MK	equipment of platforms (guides, shoes, blocking devices, buffers, fencing and locking mechanisms, mechanical or hydraulic drives)	P	—	C3	—	P	P	—
14060300MK	load-carrying means (ropes and chains with guides and attachments, leverpool system, hydraulic drives, gear racks, spindles)	P	—	C3	—	P	P	—
14060400MK	safety devices	P	—	C3	—	P	P	—
14100000MK	Type production processes	—	—	—	—	—	—	—
15000000	AUTOMATION							
15010000	Integrated automation systems of machinery installations	P	CTO*	C	—	P	P	P
15020000	Centralized alarm and monitoring systems, including computer-based systems	P	CTO*	C	—	P	P	P
15030000	Main machinery automated remote control systems:							
15030100	remote control systems of main internal combustion engines	P	—	C	—	P	P	P

1	2	3	4	5	6	7	8	9
15030200	remote control systems of main machinery with CPP	P	—	C	—	P	P	P
15030300	remote control systems of main steam turbine installations	P	—	C	—	P	P	P
15030400	remote control systems of azimuth propulsion thrusters	P	—	C	—	P	P	P
15030500	control systems of ship and MODU dynamic positioning systems	P	CTO*	C	—	P	P	P
15030600	control systems of azimuth podded electrical propulsion plant	P	CTO*	C	—	P	P	P
15030700	automated control systems of self-elevating MODU jacking mechanisms	P	CTO*	C	—	P	P	P
15030800	remote control and monitoring systems of semi-submersible MODU ballast systems	P	CTO*	C	—	P	P	P
15030900	remote control systems of azimuth and tunnel thrusters	P	—	C	—	P	P	P
15031000	Stabilization and hull-position control systems of high-speed craft	P	CTO*	C	—	P	P	P
15040000	Power plant control systems:	—	—	—	—	—	—	—
15040100	remote automated starting and stopping systems of diesel generators	P	—	C3	—	P	P	P
15040200	remote automated starting and stopping systems of turbo-generators	P	CTO*	C3	—	P	P	P
15040300	remote automated starting and stopping systems of shaft generators (where coupling control system is provided)	P	—	C3	—	P	P	P
15050000	Boiler installation control systems:	—	—	—	—	—	—	—
15050100	automated control systems of main boiler installations	P	—	C3	—	P	P	P
15050200	automated control systems of auxiliary steam boiler installations	P	—	C3	—	P	P	P
15050300	automated control systems of exhaust boiler installations	P	—	C3	—	P	P	P
15050400	automated control systems of hot-water boiler installations	P	—	C3	—	P	P	P
15060000	Control systems of auxiliary machinery:	—	—	—	—	—	—	—
15060100	automated control systems of compressors	P	—	C3	—	P	P	P
15060200	automated control systems of separators	P	—	C3	—	P	P	P
15060300	automated control systems of filters	P	—	C3	—	P	P	P
15060400	automated control systems of pumps (oil, fuel, cooling, etc.)	P	—	C3	—	P	P	P
15060500	automated control systems of fuel preparation (temperature, viscosity)	P	—	C3	—	P	P	P
15070000	Remote control of ship systems:	—	—	—	—	—	—	—
15070100	remote control systems of pumps and valves of ballast and bilge systems	P	—	C	—	P	P	—
15070200	remote control systems of icebreakers' and crane ships' heel and trim systems	P	CTO	C	—	P	P	—
15070300	remote control systems of oil tankers cargo systems	P	CTO*	C	—	P	P	—
15070400	remote control systems of gas carriers cargo system	P	CTO*	C	—	P	P	—
15070500	remote control systems of chemical tankers cargo system	P	CTO*	C	—	P	P	—
15080000	Control systems of deck machinery	P	—	C3	—	P	P	P
15090000	Devices:	—	—	—	—	—	—	—
15090100	regulating devices as parts of control systems listed in 15010000 to 15080000	P	—	C3	—	P	P	P
15090200	alarm and monitoring devices as parts of integrated and centralized control and monitoring systems listed in 15010000 to 15080000	P	—	C3	—	P	P	P
15090300	safety devices as parts of the systems listed in 15010000 to 15080000	P	—	C3	—	P	P	P
15090400	recording devices as parts of the systems listed in 15010000 to 15080000	P	—	C3	—	P	P	P
15090500	oil mist detectors in crankcases of internal combustion engines	P	CTO*	C3	—	P	P	P
15090600	computers and programmable logic controllers	P	CTO*	CTO	—	P	P	—

1	2	3	4	5	6	7	8	9
15090700	electronic fuel injection and exhaust gas expulsion processes control devices for internal combustion engines	P	CTO*	CTO	—	P	P	P
15100000	Regulators of:	—	—	—	—	—	—	—
15100101	level	P	CTO	CTO	—	P	P	—
15100102	pressure	P	CTO	CTO	—	P	P	—
15100103	temperature	P	CTO	CTO	—	P	P	—
15100104	viscosity	P	CTO	CTO	—	P	P	—
15100105	speed	P	CTO*	C3	—	P	P	—
15110000	Sensors and indicators of:	—	—	—	—	—	—	—
15110101	level	P	CTO	CTO	—	P	P	—
15110102	pressure	P	CTO	CTO	—	P	P	—
15110103	temperature	P	CTO	CTO	—	P	P	—
15110104	flow	P	CTO	CTO	—	P	P	—
15110105	salinity	P	CTO	CTO	—	P	P	—
15110106	vibration	P	CTO	CTO	—	P	P	—
15110107	position	P	CTO	CTO	—	P	P	—
15110110	gas concentration	P	CTO*	CTO	—	P	P	—
15120000	Panels, cabinets and other enclosures for:	—	—	—	—	—	—	—
15120100	control systems	P	CTO	CTO	—	P	P	—
15120200	monitoring (alarm and indication) systems	P	CTO	CTO	—	P	P	—
15120300	recording system	P	CTO	CTO	—	P	P	—
15130000	Remote instrumentation	P	CTO	CTO	—	P	P	—
15130100	Equipment diagnostic facilities	P	CTO	CTO	—	—	—	—
15200000	Type production processes	P	CTO	CTO	—	P	P	—
16000000	SHIPS AND BOATS OF GLASS-REINFORCED PLASTIC							
16010000	Glass-reinforced plastic for hull and lifeboats	P	CTO	CTO	—	—	—	—
16020000	Hull	P	—	C	—	P	—	—
16100000	Type production processes	—	—	—	—	—	—	—
18000000	NUCLEAR SHIPS AND NUCLEAR SUPPORT VESSELS							
18010000	Ship hull (additionally to non-nuclear ships):	P	—	—	—	P	P	P
18010100	collision structural protection	P	—	—	—	P	—	—
18010200	stranding structural protection	P	—	—	—	P	—	—
18010300	supporting structures and foundations in the reactor compartment	P	—	—	—	P	—	—
18010400	containment structures	P	—	—	—	P	P	—
18010500	safety enclosure	P	—	—	—	P	P	—
18020000	Nuclear reactors:	P	—	C	K	P	P	P
18020100	hulls	P	—	C	K	P	—	—
18020200	roofs with their securing items	P	—	C	K	P	—	—
18020300	removable and non-removable internals	P	—	C	K	P	—	—
18030000	Cores:	P	—	C	—	P	P	P
18030100	fuel elements	P	—	C	—	P	—	—
18030200	fuel assembly	P	—	C	—	P	—	—
18030300	protective covers	P	—	C	—	P	—	—
18030400	rods:	P	—	C	—	P	—	—
18030401	emergency shutdown rods	P	—	C	—	P	—	—
18030402	burnable poison rods	P	—	C	—	P	—	—
18030403	shim rods	P	—	C	—	P	—	—
18030500	working neutron sources	P	—	C	—	P	—	—
18040100	automatic and remote control and protective systems of nuclear reactors	P	—	C	—	P	—	—
18040200	automatic monitoring and alarm systems of nuclear reactors	P	—	C	—	P	P	P
18040300	automatic and remote control, protection, monitoring and alarm systems of NSSS	P	—	C	—	P	P	P
18040400	control, protection, monitoring and alarm devices of NSSS	P	—	—	—	P	P	P
18040401	drives and actuating mechanisms of automatic and remote controls	P	—	C	K	P	P	P
18040402	drives and actuating mechanisms of emergency protection of automatic and remote control	P	—	C	K	P	P	P
18040403	measuring equipment of nuclear reactor power level gauges	P	—	C	K	P	P	P
18040404	thermocouples and resistance thermometers	P	—	C	K	P	P	P
18040406	NSSS parameter transducers	P	—	C	K	P	P	P

1	2	3	4	5	6	7	8	9
18050000	NSSS machinery:							
18050100	primary coolant circulating pumps	P	—	C	K	P	P	P
18050200	fresh water pumps for equipment cooling and protection	P	—	C	K	P	P	P
18050300	sea water pumps for equipment cooling	P	—	C	—	P	P	P
18050500	pumps and ejectors of NSSS space drainage system	P	—	C	—	P	P	P
18050600	pumps of primary coolant make-up system	P	—	C	K	P	P	—
18050700	pumps of emergency core cooling system	P	—	C	K	P	P	—
18050800	pumps of automation hydraulic system	P	—	C	K	P	P	P
18050900	pumps of residual heat removal system	P	—	C	K	P	P	P
18051000	sorbent transfer pumps	P	—	C	—	P	P	—
18051100	high-pressure gas compressors	P	—	C	K	P	P	P
18051200	controlled area fans	P	—	C	—	P	P	P
18051300	high pressure air compressors	P	—	C	K	P	P	—
18051400	medium pressure air compressors	P	—	C	K	P	P	—
18051500	vacuum compressors	P	—	C	K	P	P	P
18060000	Heat exchangers and pressure vessels:							
18060100	steam generators:	P	—	C	K	P	P	P
18060101	housings	P	—	C	K	P	—	—
18060102	tube systems	P	—	C	K	P	—	—
18060106	fittings	P	—	C	K	P	P	—
18060200	pressure compensators	P	—	C	K	P	P	P
18060300	filters: primary circuit, primary coolant filling and make-up system, fresh water cooling system, radioactive drainage and process water treatment systems	P	—	C	K	P	P	P
18060400	heat exchangers of fresh water cooling and protection circuit	P	—	C	—	P	P	P
18060500	air coolers	P	—	C	—	P	P	P
18060600	sludge collecting tanks of primary circuit and fresh water cooling and protection system filters	P	—	C	—	P	—	—
18060700	coolers of primary circuit filters	P	—	C	K	P	P	P
18060800	drainage and collecting tanks	P	—	C	K	P	P	—
18060900	gas and air bottles	P	—	C	K	P	P	—
18061000	pneumatic and hydraulic receivers	P	—	C	—	P	P	—
18061100	steel-water protection tanks	P	—	C	K	P	P	—
18061200	first circuit recuperative heat exchangers	P	—	C	K	P	P	P
18070000	NSSS systems:							
18070100	primary coolant circulation system	P	—	C	—	P	P	P
18070200	primary coolant purification system	P	—	C	—	P	P	P
18070300	primary coolant make-up system	P	—	C	—	P	P	P
18070400	residual heat removal system	P	—	C	—	P	P	P
18070500	core emergency cooling system	P	—	C	—	P	P	—
18070600	primary coolant sampling system	P	—	C	—	P	P	P
18070700	deaeration system	P	—	C	—	P	P	—
18070800	primary coolant drainage system	P	—	C	—	P	P	—
18070900	pressure compensation system	P	—	C	—	P	P	P
18071000	secondary circuit	P	—	C	—	P	P	—
18071100	fresh water cooling and protection system	P	—	C	—	P	P	P
18071200	sea water cooling system	P	—	C	—	P	P	P
18071300	ventilation and air filtering system	P	—	C	—	P	P	P
18071400	radioactive liquid and solid collection, storage and handling system	P	—	C	—	P	P	P
18071500	NSSS space drainage system	P	—	C	—	P	P	—
18071600	sorbent handling system	P	—	C	—	P	P	—
18071700	explosive mixture removal system	P	—	C	—	P	P	P
18071800	fitting automation and control hydraulic system	P	—	C	—	P	P	P
18071900	radioactive drainage and process water purification system	P	—	C	—	P	P	—
18072000	pressure reduction in containment	P	—	C	—	P	P	—
18080000	NSSS fittings	P	—	C	K	P	P	P
18090000	Radiation monitoring system and means	P	—	C	—	P	P	P
18100000	Protection means against radioactive radiation and radioactive substance spreading	P	—	C	—	P	P	P
18110000	Liquid radioactive waste treatment equipment	P	—	C	K	P	P	—
18110100	Shielding	P	—	—	—	P	P	P

1	2	3	4	5	6	7	8	9
18110200	Fuel assembly storage facilities	P	—	C	K	P	P	—
18110300	Core handling equipment	P	—	C	K	P	P	—
19000000MK	EQUIPMENT AND ARRANGEMENTS FOR THE PREVENTION OF POLLUTION FROM SHIPS							
19010000MK	Oily-water separating and filtering equipment (resolution A.393(X))	P	СОТИ	С3, СОТИ	—	P	P	P
19020000MK	Oil content meters (resolution A.393(X))	P	СОТИ	С3, СОТИ	—	P	P	P
19020100MK	Oil filtering equipment (resolution MEPC.60(33))	P	СОТО	С3, СОТО	—	P	P	P
19020200MK	15 ppm bilge separators (resolution MEPC.107(49))	P	СОТО	С3	—	P	P	P
19030000MK	Oil discharge monitoring and control systems for oil tankers	P	СОТО	С3, СОТО	—	P	P	P
19030100MK	Oil discharge monitoring and control systems for oil tankers (resolution MEPC.108(49))	P	СОТО	С3	—	P	P	P
19030201MK	Oil content meters (resolution MEPC.60(33))	P	СОТО	С3	—	P	P	P
19030202MK	15 ppm bilge alarms (resolution MEPC.107(49))	P	СОТО	С3, СОТО	—	P	P	P
19040000MK	Oil/water interface detectors in slop tanks	P	СОТИ	С3, СОТИ	—	P	P	P
19050000MK	Pumping, piping and discharge arrangements for oily water	—	—	—	—	P	P	—
19060000MK	Tanks:							
19060100MK	segregated ballast tanks	—	—	—	—	P	—	—
19060200MK	slop tanks	—	—	—	—	P	—	—
19060300MK	cargo tanks	—	—	—	—	P	—	—
19060400MK	holding tanks	—	—	—	—	P	—	—
19070000MK	Washing systems:							
19070100MK	washing machines	—	—	С3	—	P	P	—
19070200MK	washing machine drive units	—	—	С3	—	P	P	—
19080000MK	Incinerators	P	СОТО	С3, СОТО	—	P	P	P
19080100MK	Spark-arresters in exhaust-gas systems and uptakes of incinerators	—	—	С3	—	P	P	P
19080200MK	Supply and exhaust ventilation facilities	P	—	С3	—	P	P	P
19090000MK	Sewage treatment plants	P	СОТИ	С3, СОТИ	—	P	P	P
19100000MK	Sewage comminution and disinfection systems	P	—	С3	—	P	P	—
19101000MK	Comminution plants	P	—	С3	—	P	P	—
19102000MK	Disinfection plants	P	—	С3	—	P	P	—
19110000MK	Sewage holding tanks	—	—	—	—	P	—	—
19120000MK	Sewage pumps (ejectors)	—	—	С3	—	P	P	—
19130000MK	Sewage disposal and discharge systems	—	—	—	—	P	P	—
19140000MK	Garbage treatment plants	P	—	С3	—	P	P	—
19150000MK	Garbage containers	—	—	—	—	P	—	—
19160000MK	Equipment and arrangements for prevention of pollution by noxious liquid substances	P	—	С3	—	P	P	—
19170000MK	Equipment and arrangements for prevention of air pollution							
19170100MK	Diesel engine exhaust gas cleaning systems in accordance with the requirements of Annex VI of MARPOL 73/78	P	СТО	СТО	—	P	—	—
19170300MK	Sampling equipment	P	СТО	С3	—	P	P	—
19180000MK	Substances and means for muster and liquidation of spillings of oil and oil-products	P	СТО	СТО	—	—	—	—
19210000MK	Oily waters deep purification plants	P	—	СТО	—	—	—	—
20000000	COMPUTER SOFTWARE (PROGRAMMES FOR COMPUTER-AIDED CALCULATIONS)							
20100000	Ship theory and strength programmes for computer-aided calculations	P	СТОП	СТОП	—	—	—	—
20200000	Machinery programmes for computer-aided calculations	P	СТОП	СТОП	—	—	—	—
20300000	Electrical equipment and automation programmes for computer-aided calculations	P	СТОП	СТОП	—	—	—	—
¹ Type of technical supervision is subject to special review by the Register. ² For type items only. ³ "С3" is acceptable for internal combustion engines with a cylinder diameter of 300 mm and under.								

APPENDIX 2

INSTRUCTIONS ON BRANDING OF ITEMS OF THE REGISTER TECHNICAL SUPERVISION

1 GENERAL

1.1 These Instructions supplement and explain the RS Nomenclature (refer to Appendix 1).

1.2 In the course of manufacture of certain materials, products and their parts under technical supervision of the Surveyor to the Register, non-exclusive Surveyor to the Register in accordance with Agreement on Survey (CO) (refer to 4.5 of the present Part), these materials, products and parts as well as samples taken therefrom shall be branded at certain stages of their manufacture with appropriate brands of the Register.

1.3 Materials, products and parts subject to branding by the Register are identified in the RS Nomenclature.

1.4 The purpose of branding materials, products and parts shall make sure in the course of subsequent surveys that they were properly controlled by the Register.

1.5 All the provisions of these Instructions equally refer to all spare parts, irrespective of the fact whether they have been produced for a newbuilding constructed under the Register standards or to renew the products and parts on ships in service.

1.6 In case it is found in the course of further processing, assembly or installation at the shipyard that the material, product or part is defective or does not comply with the RS rules or other RS normative documents, as well as with the technical documentation approved by the Register, it may be rejected, irrespective of the presence of the Register brand. In this case, the Register brand shall be cancelled.

The cancellation of the brands shall be done in the presence of the Surveyor to the Register, non-exclusive Surveyor to the Register, official of the manufacturer authorized under the Agreement on Survey (CO) to do branding (hereinafter referred to as "the official of the manufacturer").

1.7 All the provisions of these Instructions equally refer to Surveyors to the Register, including non-exclusive Surveyors to the Register, and officials of the manufacturers.

2 TYPES OF THE REGISTER BRANDS

2.1 The Register brands are subdivided into the brands of Surveyor to the Register and those of non-exclusive Surveyor to the Register. The appearance of the brands is the same with a difference that brands of non-exclusive Surveyor have a line under the brand.

Brands of the Surveyor to the Register shall be used for branding by the Surveyors to the Register, brands of non-exclusive Surveyor to the Register — by non-exclusive Surveyors to the Register and by officials of the manufacturers.

2.2 For branding materials, products and parts, use is made of brands, stamps and punches.

2.3 Brands are used for branding materials, products and parts made of metal or material enabling to put a durable brand imprint.

2.4 The brands may be of preliminary or final nature. The imprints of brands are shown in Figs. 2.4-1 and 2.4-2.



Fig. 2.4-1 Imprint specimens of preliminary brands:
a) — Surveyor to the Register;
b) — non-exclusive Surveyor to the Register



Fig. 2.4-2 Imprint specimens of final brands and punches:
a) — Surveyor to the Register;
b) — non-exclusive Surveyor to the Register

2.5 The preliminary brands of the Surveyor and non-exclusive Surveyor to the Register are put on:

.1 test specimens and products, from which these specimens are taken for mechanical tests and examinations;

.2 products and parts, which production process has not been completed, subject to further treatment.

2.6 The final brand of the Surveyor and non-exclusive Surveyor to the Register is put on finished materials, products or parts, manufactured, surveyed and tested in compliance with the RS rules and other RS normative documents and technical documentation approved by the Register.

2.7 In case materials, products or parts bearing brands are rejected, the brand imprint shall be destroyed.

2.8 The Surveyor's stamp is used for branding with indelible paint of non-metal products made of materials where the brand impression cannot be preserved for a long time, but the area available is enough to put a stamp (lifebuoys, lifejackets, inflatable liferafts, etc.).

2.9 The Register stamp imprint is shown in Fig. 2.9.



Fig. 2.9
Imprint specimen of Surveyor's stamp

2.10 In case the product is rejected after a stamp has been put thereon, the whole imprint shall be filled with the indelible paint.

2.11 The Register seals are intended for such products and parts where a brand or stamp cannot be directly placed as well as for sealing safety devices.

2.12 Brand and punch imprints are shown in Fig. 2.4-2.

2.13 In case a product after sealing is rejected, the seal shall be removed.

3 GENERAL INSTRUCTIONS ON BRANDS AND BRANDING

3.1 Presence of brands of the Surveyor or non-exclusive Surveyor to the Register on the materials and products does not relieve the supplier from presentation of the documents required by the Register.

3.2 The Register does not put its brand on the parts after repair.

3.3 Brands, stamps and sealer punches shall be kept by the Surveyors and non-exclusive Surveyors to the Register, and officials of the manufacturers under conditions preventing them from an authorized use.

3.4 Brands, stamps and sealer punches shall be handed in to the Surveyors to the Register by the Head of the RS Branch Office or his Deputy against receipt. In so doing, an imprint of the handed in stamp or punch is made in the statement for their handing. Non-exclusive Surveyors, officials of the manufacturers receive brands, stamps and sealer punches from RHO according to the concluded contracts, Agreements on Survey (CO).

3.5 The decision on ordering new brands, stamps and sealer punches is taken by RHO.

3.6 Branding of materials, products and parts shall be done in the presence and upon instructions of the Surveyor, non-exclusive Surveyor to the Register or the official of the manufacturer.

3.7 In case a quality control service is available at the manufacturer, finished materials, products and parts shall be controlled and then branded by that quality control service before submission to the Surveyor to the Register.

3.8 The number of cast, ordinal number of the specimen, brand of the quality control service and preliminary brand of the Surveyor or non-exclusive Surveyor to the Register shall be punched on the test specimens produced for testing mechanical properties of materials and samples.

3.9 Brands shall be generally put on materials, products and parts in readily accessible places in such a way that they can be easily found after installation on board the ship.

3.10 All finished products shall be provided with manufacturer's marking, which shall consist of a serial number and the year of manufacture.

The details of manufacturer's marking of some products are given in Section 5.

Marking may be applied on identification plates or directly on the products. The final brand of the Register shall be located underneath the marking on the right-hand side.

Where it is difficult to find the places of marking and brands (plates, rolled products, forgings, castings, etc.), the brand shall be put in the frame made with a contrast paint.

3.11 In branding the products to undergo further machining the brand shall be put in spots, which will not be machined later. If it is impracticable, the brand shall be transferred in the course of machining as stated in Section 4.

3.12 Finished products and products, which manufacturing process has not been completed and which shall

undergo further machining at other manufacturers, in case the products bear the Register brand, shall be provided with a certificate or another appropriate document.

Such documents shall bear an imprint of the brand (stamp), which has been put on the product. If there is no

place specially provided for the imprint, the latter shall be put in the bottom part of the form above the Surveyor's signature.

4 TRANSFER OF BRANDS

4.1 The Register brands shall be preserved in any treatment or assembly of the parts. Where brands shall be cut because of the processing conditions, they shall be transferred to another place. For this purpose manufacturer's marking shall be transferred to a new place, and then the part shall be presented to the Surveyor to the Register for transference of the brand.

4.2 In case the brand shall be transferred in the process of treatment of the part in non-working time of the Surveyor, the manufacturer shall inform the Surveyor in advance, indicating the part and manufacturer's marking.

4.3 In particular cases, the Surveyor may allow to cut the brand and to transfer manufacturer's marking of the part to a new place under supervision of a manufacturer's supervisor. In such cases, the supervisor shall make an entry in the workshop's log, draw up a report and put his brand on the part.

Based on log entry or report and manufacturer's supervisor brand, the Surveyor to the Register puts a new Register brand on the part.

5 BRANDING AND MARKING PLACES

5.1 MATERIALS

5.1.1 Marking of the materials shall be done in accordance with the manufacturer's current regulations with a mandatory account of the requirements of the RS rules.

5.1.2 Steel plates, every one of which requires to be tested according to the RS rules, are subject to mandatory branding.

Branding of other steels is done in cases specially provided by the Register or on customer's request.

5.2 CASTINGS

5.2.1 Gated samples or castings in places where specimens are taken shall be marked with the Register preliminary brand.

5.2.2 In case of separately cast samples, poured together with the specimens are steel tags, on which the numbers of the cast and pouring wherefrom specimens are taken, shall be punched by a supervising body of the manufacturer. Upon extraction of the samples out of the mould the Register preliminary brand shall be put thereupon.

5.2.3 Upon satisfactory results of the specimen tests and survey a preliminary brand of the Register is put on one of the casting ends, next to the number of the cast.

5.3 STEEL FORGINGS

5.3.1 Upon satisfactory results of the specimen tests and survey, a preliminary brand of the Register is put on one of the forging ends, next to the number of the cast.

5.4 SHIP'S ARRANGEMENTS

5.4.1 Steering gear.

5.4.1.1 Upon completion of bench tests of the gear (engine) at the manufacturer the final brand of the Register is put on the manufacturer's plate of the steering gear.

The rudder stock moment value shall be mandatorily indicated on the manufacturer's plate.

5.4.1.2 The final brand of the Register is put on the following places of finally processed rudder stocks, rudder spindles of "Simplex" type and pintles: upper butt surface of rudder stocks, flange surface of rudder spindles of "Simplex" type and upper butt surface of the pintles.

5.4.2 Anchor arrangement.

Upon completion of bench tests of windlasses and anchor capstans at the manufacturer, the final brand of the Register is put on the manufacturer's plate of windlasses and anchor capstans.

The chain cable diameter shall be mandatorily indicated on the manufacturer's plate.

5.4.3 Anchors.

5.4.3.1 The following data shall be punched or cast on every anchor in places specially provided for marking (of circular or square shape): the manufacturer's trade mark, mass of the anchor in assembly, manufacturer's number, final brand of the Register — in circle; year of test and final brand of the Register — in square.

5.4.3.2 On Hall's anchors, the circle for marking shall be provided on one of the anchor flukes, the square — on the other fluke and in the upper part of the anchor shank. The mass of the assembled anchor shall be additionally cast or punched on the shank.

5.4.3.3 On admiralty anchors, all the marking shall be punched in place where the shank is attached to the flukes; on welded anchors — on the fluke below the welding line. The mass of the anchor shall be punched on the stock.

5.4.4 Anchor chain cables.

The marking of chain cable shall be done on end links of every length and shall include the certificate number, chain cable grade and the Register brand. The location of marking shall be as shown in Fig. 5.4.4.

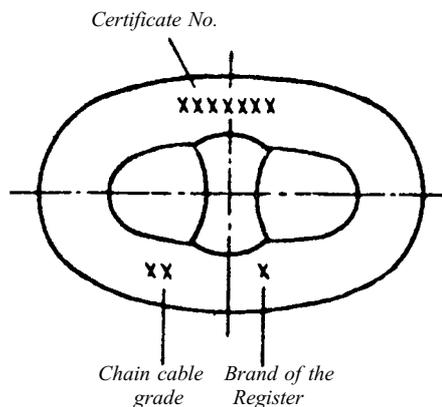


Fig. 5.4.4

Every part of the chain cable shall be marked, the marking shall include the certificate number, chain cable grade and the Register brand.

5.5 LIFE-SAVING APPLIANCES

5.5.1 Launching appliances.

5.5.1.1 Upon testing and survey of davits or other launching appliances the following shall be marked thereupon:

- permissible working load;
- date of test;
- final brand of the Register.

5.5.1.2 Upon completion of all the required tests and surveys all life-saving appliances shall be marked in order as set forth under 5.5.2 to 5.5.6.

5.5.2 Lifeboats.

5.5.2.1 On each side of the lifeboat's bow the following information shall be marked:

the number of persons, for which the lifeboat is approved (in clear permanent characters with the indelible paint);

the name and port of registry of the ship, to which the lifeboat belongs (in block capitals of the Roman alphabet).

Marking permitting to identify the ship, to which the lifeboat belongs, and the lifeboat number shall be made in such a way that it is visible from above.

5.5.2.2 On exterior of every lifeboat in accessible place above the waterline a metal plate made of anti-corrosive material shall be secured containing the following data:

manufacturer's name or trademark;

number of Type Approval Certificate (CTO) with "RS" letters and number of the certificate issued by the Register to the lifeboat;

serial number;

number of persons permitted to be accommodated;

date of survey;

final brand of the Register.

5.5.3 Rigid and inflatable liferafts.

5.5.3.1 On the exterior of every liferaft the following information shall be permanently marked with the indelible paint:

name and port of registry of the ship, to which the liferaft belongs (for inflatable liferafts, name and port of registry of the ship shall be marked in such a form that the ship identification can be changed anytime without opening the container);

number of persons permitted to be accommodated over each entrance in characters not less than 100 mm in height of a colour contrasting with that of the liferaft;

word "SOLAS" and type of emergency pack enclosed (for rigid liferafts);

launching instructions (for rigid liferafts);

length of painter (for rigid liferafts);

maximum permitted height of stowage above waterline (for rigid liferafts).

5.5.3.2 On the inner side of every liferaft the plate made of the material, which does not become unfit for use throughout the service life of the liferaft, shall be secured, containing the following information marked with the indelible paint or in some other suitable way:

manufacturer's name or trademark;

serial number;

number of the certificate issued by the Register to the liferaft with "RS" letters;

date of manufacture (month and year);

final brand or stamp of the Register;

name and place of serving station where it was last surveyed (for inflatable liferafts).

5.5.4 Containers for inflatable liferafts.

In the area of a pocket of a soft container or next to a lock of a rigid container the following information shall be marked with the indelible black or other contrasting colour paint:

- manufacturer's name or trademark;
- serial number;
- "RS" letters and number of Type Approval Certificate (CTO);
- number of persons permitted to be accommodated;
- word "SOLAS";
- type of emergency pack enclosed;
- date and place of the latest servicing;
- length of painter;
- maximum permitted height of stowage above waterline;
- stamp of the Register.

5.5.5 Lifebuoys.

On the flat part of lifebuoys the date of manufacture and the Register stamp shall be marked with the indelible paint.

5.5.6 Lifejackets, immersion suits, antiexposure suits and thermal protective aids.

In conspicuous places of lifejackets, immersion suits, antiexposure suits and thermal protective aids manufacturer's name or its trade mark the date of manufacture, number of Type Approval Certificate (CTO) with "RS" letters and the Register stamp shall be marked with the indelible paint.

5.5.7 Rescue/fast rescue boats (rigid, inflated and combined).

Marking and branding of rescue/fast rescue boats shall comply with the requirements of 5.5.2, except that the metal plate mentioned in 5.5.2.2 shall be secured on the inner side of the upper part of the boat transom.

5.5.8 Hydrostatic release units.

Hydrostatic release unit shall be permanently marked on its exterior or have identification plate made of anti-corrosive material, which does not become unfit for use throughout the service life of the unit, securely attached to the unit, with the following data:

- manufacturer's name or trademark;
- type of the unit;
- serial number;
- number of Type Approval Certificate (CTO) with "RS" letters;
- date of manufacture;
- whether the unit is suitable for use with a liferaft with a capacity of more than 25 persons;
- if disposable, exact expiry date shall be marked.

5.5.9 Automatic gas inflation system for inflatable liferafts, marine evacuation systems, means of rescue.

5.5.9.1 Automatic gas inflation system shall be permanently marked on a securely attached identification plate made of anti-corrosive material, which does not become unfit for use throughout the service life of the system, with the following data:

- manufacturer's name or trademark;
- type of the system;
- serial number;
- number of Type Approval Certificate (CTO) with "RS" letters;
- date of manufacture.

5.5.9.2 On the upper spherical or cylindrical part of the pressure vessels upon completion of hydraulic tests the following information shall be clearly marked:

- manufacturer's trademark;
- manufacturer's number;
- capacity or working pressure;
- date of last testing;
- final brand of the Register.

5.5.10 Means of rescue.

5.5.10.1 An inflatable means of rescue shall be marked as set forth under 5.5.3.2. The marking shall contain also the number of persons permitted to be accommodated. Provision shall be made for marking the inflatable means of rescue with the name and port of registry of the ship, to which it belongs, so that the ship identification can be changed anytime without opening the container.

5.5.10.2 A rigid means of rescue shall be marked with the following data:

- manufacturer's name or trademark;
- serial number;
- number of the certificate issued by the Register to the raft with "RS" letters;
- word "SOLAS";
- number of persons permitted to be accommodated;
- maximum permitted height of stowage above waterline;
- launching instructions.

5.5.11 Marine evacuation system.

5.5.11.1 In addition to the data set forth under 5.5.3.2, the capacity of marine evacuation system shall be marked.

5.5.11.2 The container for marine evacuation system shall be indelibly marked with the data set forth under 5.5.4, except that in lieu of the number of persons permitted to carry, the capacity of the marine evacuation system and the date of manufacture are marked, while the type of emergency pack enclosed and the length of painter are not marked.

5.5.12 Lifebuoy self-igniting lights and self-activating smoke signals, lifejacket lights, external and internal lights of lifeboats and liferafts, lights of rescue/fast rescue boats, sea-water-activated sources of energy, food ration, water in receptacles, search-lights of life- and rescue boats, boat's compasses, line-throwing appliances.

The following information shall be marked on the above products or packing thereof:

- manufacturer's name or trademark;
- type of product;
- number of Type Approval Certificate (CTO) with "RS" letters;

date of manufacture;
if disposable, exact expiry date shall be marked or date when it shall be renewed.

5.6 MAIN DIESEL ENGINES, AUXILIARY DIESEL ENGINES WITH POWER OUTPUT 55 kW AND OVER

5.6.1 Upon completion of bench tests of the engines at the manufacturer, elimination of all faults found and check tests, the final brand of the Register is put on the manufacturer's plate.

5.6.2 Crankshafts.

5.6.2.1 Forgings intended for manufacture of crankshafts shall be delivered for machining with the preliminary brand of the Register and a certificate (if forgings are produced by another manufacturer);

5.6.2.2 Where the crankshaft is adequately big, manufacturer's marking and final brand of the Register on the machined crankshafts shall be put on the cylindrical surface of the crankshaft coupling flange.

Where the surface area is not enough, the marking shall be made on the outer side of the crank web first after the coupling flange.

Each section of built-up crankshafts shall be branded using the same principle from the side nearest to the coupling flange.

5.6.2.3 Each pin or journal in built-up crankshafts shall be checked and marked with the Register preliminary brand on the butt; the webs — on the outer side in the area of boring for the journal.

5.6.2.4 On every junction of built-up crankshafts, on webs and journals or pins, along with common manufacturer's marking, numbers of junctions shall be marked.

5.6.3 Connecting rods.

The manufacturer's marking and final Register brand on adequately big connecting rods shall be put on the front part of connecting rod foot, in case the area is not enough — on the side of the foot.

5.6.4 Piston rods.

The Register final brand shall be put on the flange or below the taper part of the piston rod in the area where it is attached to the piston.

5.6.5 Crossheads.

The Register final brand shall be put next to the manufacturer's marking.

5.6.6 Pistons.

The Register final brand shall be put next to the manufacturer's marking.

5.6.7 Cylinder liners.

The Register final brand shall be put on the top butt part of the cylinder shoulder.

On big engine liners where the shoulder is not sunken in the block, the brand may be put on the side surface of the shoulder.

5.6.8 Cylinder blocks.

The Register final brand shall be put on the side surfaces of blocks on the areas specially allocated for the manufacturer's marking, and in case no special area is provided, on the machined side surface of the cylinder block, nearest to the coupling flange (coupling) of the crankshaft.

5.6.9 Cylinder covers.

Where the total surface of the cover is machined, the manufacturer's marking and the Register final brand shall be put on that surface.

5.6.10 Bedplates, crankcases, columns.

The Register final brand shall be put on specially allocated areas, and in case no provision is made for such areas, on a readily visible place next to the manufacturer's marking.

5.7 MAIN STEAM TURBINES AND ELECTRIC GENERATOR TURBINES

5.7.1 Upon completion of bench tests at the manufacturer, elimination of all faults found, the Register final brand is put on the manufacturer's plate of the geared turbine installation or a turbine.

5.7.2 Rotors and shafts.

5.7.2.1 Forgings intended for manufacture of rotors and shafts shall be delivered for machining with the preliminary brand of the Register and a certificate (if forgings are produced by another manufacturer);

5.7.2.2 After final assembly of all blading stages and balancing the Register final brand shall be put on the rotor flange generatrix.

5.7.3 Turbine casings.

The Register final brand shall be put on the generatrix of the horizontal joint flange after assembly of the casing with the rotor.

5.7.4 Manoeuvring gear casings, nozzle boxes.

The Register final brand shall be put on the generatrix of the horizontal joint flange.

5.8 MAIN GAS TURBINE PLANTS AND GAS TURBINES OF ELECTRIC GENERATORS

5.8.1 Upon completion of bench tests at the manufacturer, elimination of all faults found, the Register final brand is put on the manufacturer's plate of the gas turbine installation (turbine).

5.8.2 In the course of production of the gas turbine installation, after final assembly and testing casings of turbines, compressors and combustion chambers, rotors, shafts, discs shall be branded by the Register.

The brand shall be put next to the manufacturer's branding.

5.9 GEARS AND DISENGAGING COUPLINGS OF MAIN MACHINERY

5.9.1 Upon completion of the bench tests at the manufacturer and satisfactory results thereof, the Register final brand is put on the manufacturer's plate of the gear.

5.9.2 Pinions and wheels.

The Register final brand is put on the generatrix of the pinion and wheel flange, and if there is no flange — on the shaft butt. Such branding is done upon completion of assembly of the whole gear and checking the teeth by blueing. The preliminary brand is put in case of intermediate checkings.

5.9.3 Shafts of reduction gears and couplings.

The Register final brand is put on the cylindrical surface of the coupling flange.

5.9.4 Casings of reduction gears and couplings.

The Register final brand is put on the horizontal flange of the casing joints of reduction gears and couplings.

5.10 SHAFTING AND PROPELLERS

5.10.1 Forgings intended for manufacture of thrust, intermediate and propeller shafts shall be branded with the Register preliminary brand.

5.10.2 Finally machined thrust, intermediate and propeller shafts (including CPP shafts) shall be marked with the Register final brand on the cylindrical surface of the flanges. Where there are no flanges, the brand shall be put on the shaft butt.

5.10.3 The Register final brand on solid propellers shall be put on the side surface of the hub under the manufacturer's marking, which includes the manufacturer's trade mark, pitch and diameter of the propeller, direction of rotation.

5.10.4 The Register final brand on built-up propellers shall be put on the hub and outside surface of each blade flange or on the hub root in the area of the shank (for CPP). The manufacturer's marking of the hub is similar to that referred to in 5.10.3. The whole CPP shall be branded with the Register final brand on the manufacturer's plate of the machinery pitch control gear.

5.11 BOILERS

5.11.1 On the non-removable parts of the boiler front, in a conspicuous place readily accessible for inspections the manufacturer's plate shall be secured containing the following data:

- manufacturer's trade mark;
- year of manufacture;

- manufacturer's number;
- boiler index;
- working steam pressure in the boiler;
- superheated steam temperature;
- steaming capacity, for fire-tube boilers — heating surface area;
- final brand of the Register.

5.11.2 The Register final brand is put after hydraulic tests at the manufacturer.

5.11.3 Main parts of the boiler, namely: shells, headers (chambers) after completion of hydraulic tests as well as combustion chambers, furnaces, stays before assembly shall be surveyed and marked with the Register preliminary brand.

In case the boiler components are produced at the same manufacturer where a boiler is assembled, branding of the above components is not mandatory.

5.11.4 Safety valves of the boilers shall be finally tested on board, one of them shall be sealed by the Register.

5.12 AIR RECEIVERS

5.12.1 On the upper spherical or cylindrical (depending on the bottle size) part of the air receiver casing the following data shall be clearly marked:

- manufacturer's trade mark;
- year of manufacture;
- manufacturer's number;
- air receiver index;
- working pressure;
- capacity;
- final brand of the Register.

5.12.2 The Register final brand is put on the air receiver upon completion of hydraulic tests at the manufacturer.

5.12.3 In case end plates or cylindrical parts of air receivers are produced at another manufacturer, they shall be branded with the Register preliminary brand.

5.12.4 Safety valves installed on air receivers shall be tested and sealed by the Register.

5.13 MACHINERY, PRESSURE VESSELS AND APPARATUS OF REFRIGERATING PLANTS

5.13.1 The Register final brand is put on the manufacturer's plate of compressors and refrigerant pumps upon completion of bench tests at the manufacturer.

5.13.2 The Register final brand is put on the manufacturer's plate of pressure vessels and apparatus working under a refrigerant pressure upon completion of hydraulic and air tests with satisfactory results at the manufacturer.

5.13.3 Safety valves installed on the pressure vessels and apparatus working under a refrigerant pressure shall be tested and sealed by the Register.

5.14 ELECTRICAL EQUIPMENT

5.14.1 The Register final brand is put on the plates of generators, motors, electromagnetic couplings upon completion of the required surveys and tests at the manufacturer.

5.15 SIGNAL MEANS

5.15.1 In a conspicuous place on each navigation and flashing lantern the Register final brand is put and manufacturer's plate shall be secured containing the following data:

- manufacturer's trade mark;
- lantern designation;
- lantern index;
- sequence number;
- year of manufacture.

5.15.2 Directly on every sound signal means, such as whistle, typhon, horn, hong, bell the following shall be marked:

- manufacturer's trade mark;
- sequence number;
- year of manufacture;
- final brand of the Register.

5.15.3 Pyrotechnic signal means (rocket parachute flares, signal rockets, hand flares).

Every pyrotechnic signal means shall be marked with the following data in Russian and English:

- manufacturer's name or trademark;
- name of the product;
- brief instructions or diagrams clearly illustrating how it shall be operated;
- number of Type Approval Certificate (CTO) with "RS" letters;
- date of manufacture;
- date of its expiry or date when it shall be renewed.

5.16 CARGO HANDLING GEAR

5.16.1 Cargo handling gear shall be marked in compliance with the provisions of Sections 7 and 11 of the Rules for the Cargo Handling Gear of Sea-Going Ships.

PART II. TECHNICAL DOCUMENTATION

1 APPLICATION

1.1 The provisions of this Part are applied in examination of the technical documentation on construction of ships and manufacture of materials and products subject to the Register supervision in compliance with the General Regulations for the Classification and Other Activity.

1.2 These provisions are also applied in review of the technical documentation on conversion, modernization, restoration and repair of the items of technical supervision as far as it is practicable and reasonable.

2 DEFINITIONS AND EXPLANATIONS

2.1 Definitions and explanations related to the general terminology of the RS rules are given in 1.1 of Part I "Classification" of the Rules for the Classification and Construction of Sea-Going Ships.

Terms and definitions used in this Part and related to the technical documentation are given in Section 1 of Part I "General Regulations for Technical Supervision" of these Rules.

3 GENERAL

3.1 Construction of ships and manufacture of materials and products shall be in compliance with the technical documentation approved (agreed) by the Register.

3.2 Review (expertise) of the technical documentation aims at verification of the compliance of the items of technical supervision with the RS requirements.

3.3 Technical documentation on items of technical supervision shall be submitted to the Register for review and approval (agreement) before the commencement of construction (manufacture) of the items.

Documents shall be submitted in the form of originals, duplicates or copies and shall be compiled in the Russian or English languages.

Where the documents are submitted in an electronic form, their format and the manner of transfer shall be agreed with the Register in each particular case.

3.4 Technical documentation submitted to the Register for review shall be prepared in such a way or supplied with such additional information that enables to make sure that the appropriate provisions of the RS rules and international conventions and agreements are fulfilled.

3.5 Technical documentation may be submitted to the Register as one of the following alternatives:

.1 technical design with subsequent submission of the detailed design documentation;

.2 technical detailed design without submission of the detailed design documentation. In such case, documentation of the technical detailed design shall contain all necessary information that enable not only to determine the compliance of the item with the RS requirements but also to provide technical supervision during manufacture of its main structural assemblies.

The amount of the documentation for each of the alternatives is given in the Rules for the Classification and Construction of Sea-Going Ships and other rules for the classification and construction of specialized types of ships and floating facilities (for list of the RS rules refer to 1.3 of the General Regulations for the Classification and Other Activity).

The amount of the technical documentation for ships and products of special design and purpose is subject to special consideration of the Register in each particular case.

Standards on individual materials and products agreed upon with the Register may substitute an appropriate part of the documentation or documentation as a whole.

3.6 Where totally new solutions are used, a technical assignment, draft proposal, sketch design as well as experimental design and research developments may be submitted to the Register for review. Such documents are not subject to the Register approval (agreement), and on

the results of their review a written conclusion letter is compiled (refer to 8.4).

3.7 The Register reviews and agrees the Russian standards (national standards and standards of organizations) as well as standards of other countries and international standards containing norms and requirements for items of the Register technical supervision.

Standards of another country are agreed upon when they are officially submitted by a state organization of the country for agreement.

In case standards of another country are submitted together with the technical documentation on items of the Register technical supervision, they are reviewed as part of that documentation, and a possibility of their application in each case is confirmed by the approval of the technical documentation without agreement of the standards themselves.

The main provisions concerning agreement of standards and other normative documents are stated in Section 7.

3.8 Calculations necessary for determination of parameters and values regulated by the RS rules shall be made in compliance with the provisions of these RS rules or according to the procedures agreed by the Register.

The procedures and methods of calculations used shall provide an adequate accuracy of the problem solution.

Computer-aided calculations shall be made in accordance with the programs having type approval of the Register.

The Register does not check the correctness of computing operations in calculations, including those made according to the programs having type approval of the Register but examines only the final results of the calculations. In separate cases, the Register may conduct additional expertise of the accuracy of the final results.

The main provisions concerning approval of computer-aided calculation programs and agreement of calculation procedures are stated in Section 12.

3.9 Amendments made in the technical documentation approved (agreed) by the Register and dealt with the fulfillment of the RS requirements shall be submitted to the Register for review prior to their implementation (refer to Section 10).

3.10 In case the submitted technical documentation shows full (or recognized by the Register as adequate) compliance of the items of supervision with the RS requirements, this documentation is approved (agreed).

Various calculations, descriptions, explanatory notes, research reports, test results and other similar documents submitted together with the technical documentation on the items of technical supervision are duly noted by the Register.

The documentation, which does not meet the RS requirements, is returned to the design office for further work and/or updating.

3.11 The fact that the documentation is approved, agreed or duly noted is acknowledged by putting on it the appropriate stamps of the Register (refer to Section 8). This does not relate to the elements and structures contained therein, to which the RS requirements are not applicable.

3.12 Where technical documentation contains technical solutions that differ from those regulated by the RS rules (deviations), the design office shall submit the list of these solutions with description of their essence and technical grounds. The Register informs of its decisions taken on the list in its conclusion on the results of review. Deviations not included in the list are not considered as approved, and the Register may require their elimination at any subsequent stage of design, construction or manufacture of the item.

3.13 Approval of the technical documentation by any Register Branch Office is valid for all other Register Branch Offices. Such approval may be (in case of proper reasons) cancelled or altered only by the Register Branch Offices, which approved the documentation, as well as a higher Register Branch Office up to RHO.

The technical documentation approved by one of the Register Branch Offices is accepted by other Register Branch Offices for carrying out technical supervision without additional approval of the documentation concerned, provided no updating is required by the production conditions of the particular manufacturer.

3.14 The differences of principle on the technical documentation shall be finally resolved by:

.1 RHO in relation of technical designs and technical detailed designs, and normative documents;

.2 RS Branch Offices in relation to detailed design documentation.

3.15 The Register charges fees for review of the technical documentation in accordance with its current tariffs (irrespective of the results of review).

3.16 All the documentation submitted to the Register for review is confidential and may be handed over to a third party only upon the written consent of its legal owner.

4 TECHNICAL DOCUMENTATION ON SHIPS

4.1 Technical designs and technical detailed designs of ships as well as major conversions of ships are subject to review and approval by RHO or by the RS Branch Offices when duly authorized by RHO.

The projects involving upgrading and minor conversions, passage of ships, as well as detailed design documentation are subject to review and approval by the RS Branch Offices without the RHO authorization.

4.2 Applications for review of the technical documentation shall be sent to RHO depending on the type of the documentation according to 4.1.

An application for review of the design documentation shall contain the following information:

- number of the project;
- type of the ship;
- purpose of the ship;
- main particulars of the ship;
- date of contract for construction of the ship or series of sister ships, as well as hull numbers (i.e. order number) of all ships included in the contract, with indication of the optional ships;
- confirmation that the organization has been familiarized with the General Conditions for Rendering Services (Carrying Out of Work) by Russian Maritime Register of Shipping;
- guarantee of payment for the RS services.

In addition to the above, in the application on review of detailed design documentation the following information shall be indicated:

date of technical design approval;

Register Branch Office, which has approved the technical design;

date when development of the detailed design documentation commenced;

name of the shipyard.

4.3 Three sets of technical designs and technical detailed designs together with a covering letter and the full list of documents presented shall be submitted to the Register for review.

The designer shall submit additional documents to support and explain the solutions adopted in the design, if specially requested by the Register.

On agreement with the Register, presentation of the designs by separate parts (on hull, machinery, systems, electrical equipment, etc.) may be allowed. In so doing, specification and general arrangement plans shall be presented together with the first portion of documents.

4.4 Review of technical designs and technical detailed designs takes 45 working days.

In case the design documentation is presented by parts, its review takes 30 working days from the date of receiving the last portion.

The procedure, time, place and other conditions of reviewing the detailed design documentation by the Register shall be agreed upon with the RS Branch Office responsible for technical supervision of the detailed design.

5 TECHNICAL DOCUMENTATION ON PRODUCTS

5.1 RHO or the RS Branch Offices, if duly authorized by RHO, review and approve the technical documentation on the products against which description symbols "C", "CTO" or "C3" are indicated in column 5 of the RS Nomenclature (refer to Appendix 1, Part I "General Regulations for Technical Supervision", as well as on new products, which are not regulated by the RS rules and have not been used before in shipbuilding and ship machine building.

The technical documentation on the items shown under other letters in the RS Nomenclature may be reviewed and approved by the RS Branch Offices without the RHO authorization.

5.2 The design documentation shall be submitted to the Register in triplicate, detailed design documentation — in duplicate.

5.3 In case products or their parts or assemblies indicated in the RS Nomenclature are produced in compliance with standards, the standards shall be agreed upon with the Register in accordance with Section 7.

5.4 The technical documentation on the products of assembly unit types or on sets of products, etc., which include the component parts indicated in the RS Nomenclature and supplied by subcontractors (generators, reduction gears, prime movers of generators, compressors, pumps, deck machinery, automation systems, etc.) is approved after approval by the Register of the technical documentation on the component parts.

In particular cases, the Register may approve the technical documentation on assembly units, the technical documentation of which component parts does not have the Register approval, provided satisfactory results of testing component parts together with assembly units show their suitability for on board operation (mechanical and climatic tests) and their electromagnetic compatibility (for electrical and electronic equipment).

5.5 Where the products are designed not as type products but for a particular ship, the technical

documentation on such products is generally reviewed by the Register within the ship technical documentation.

5.6 Where use is made of type products manufactured in accordance with the technical documentation approved by the Register, the latter reserves the right for additional review of their possible use within the particular ship project.

5.7 In case the technical documentation for the products is presented for review and approval complete with the ship design (upon the agreement with the manufacturer), the results of its review are communicated to the designer by a separate letter.

5.8 The products referred to in the RS Nomenclature and intended for repairs and supply of the ships with spare parts shall be manufactured according to the technical documentation approved by the Register.

5.9 In case the technical documentation on spare parts for products in service is developed anew, the developer of the documentation shall present it to the RS Branch Office, in which area the documentation developer is located, for review and approval together with the information, which confirms the compliance of the design and materials of spare parts to the specifications of these products.

6 TECHNICAL DOCUMENTATION ON MATERIALS

6.1 Technical documentation on materials shall be submitted for review and approval to RHO or, if so instructed by RHO, to the RS Branch Offices in duplicate.

6.2 Documentation shall be submitted as standards, specifications and similar documents containing necessary information on the production procedure, chemical composition, mechanical and technological properties,

scope of tests and testing procedures, drawing-up of the test results and marking procedure.

6.3 Where materials are manufactured in accordance with the standards, the latter shall be reviewed and agreed upon in compliance with Section 7.

6.4 Provisions of 5.5 to 5.9 concerning the products are also applicable to materials as far as it is practicable and reasonable.

7 NORMATIVE DOCUMENTS

7.1 National standards and guidelines, as well as international standards (refer to 3.7) shall be submitted for review to RHO; standards of organizations and other normative documents — to the appropriate RS Branch Offices situated within the area of their operation.

Standards of another country are considered by RHO or the RS Branch Office, if duly authorized by RHO.

7.2 All wordings of the normative documents shall be submitted for review but only the final wording of the document shall be agreed upon.

7.3 The Register compiles a conclusion letter (comments) on the first and intermediate wordings of the normative documents, which is sent to the document developer, and the documents are kept for the Register files.

7.4 Where drawings have been produced, calculations made and other documents compiled as well as various tests carried out for the purpose of development or revision of the normative document, the Register may

require these documentation and test results to be submitted for review.

7.5 Where it is found in the course of the normative document review that the content of the documentation is not in full compliance with the RS requirements, the Register may require the additional documentation to be submitted for review or additional tests to be carried out.

7.6 When the normative documents are reviewed and agreed upon, one shall be guided by the following:

.1 newly developed documents for the items subject to the Register technical supervision during manufacture are agreed upon by the Register, provided their requirements are at least as stringent as those of the RS requirements;

.2 where the requirements of the previously published documents do not meet the RS requirements, their application is subject to special consideration of the Register. In the subsequent revision of these documents, their requirements shall be brought in compliance with the RS requirements.

8 PREPARATION OF RESULTS OF TECHNICAL DOCUMENTATION REVIEW

8.1 Upon approval of the technical documentation on ships, materials and products (other than normative documents), the Register stamps shown in Figs. 8.1-1 and 8.1-2 are put on the appropriate drawings or documents.

Note. Samples of the RHO stamps are shown in Figs. 8.1, 8.2 and 8.3. For the RS Branch Offices, the names of the appropriate RS Branch Offices are indicated in lieu of the words "Head Office" and their code numbers under the Register emblem.

8.2 Upon agreement of the normative documents by the Register, the Register stamp shown in Fig. 8.2 is put on the title page. Agreement with comments is not allowed.

8.3 Upon satisfactory results of review of the technical documentation such as calculations, descriptions, explanatory notes, etc. (refer to 3.10), the Register stamps shown in Figs. 8.3-1 and 8.3-2 are put on the documents.

8.4 Based on the results of review of the technical documentation referred to in 3.6, the Register compiles the conclusion letter without stamping or signing the documents.

8.5 In case of negative results of review, the RS requirements are communicated in the conclusion letter. No Register stamps are put on the documents.



Fig. 8.1-1

Stamps (in Russian and English) on the documents approved by the Register without remarks



Fig. 8.1-2

Stamps (in Russian and English) on the documents approved by the Register with remarks



Fig. 8.2
Stamp on the normative documents agreed by the Register

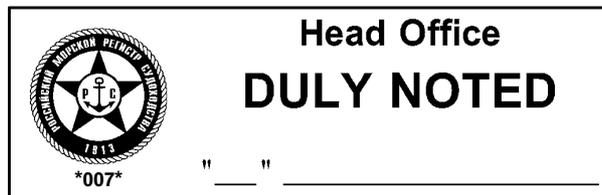


Fig. 8.3-1
Stamps (in Russian and English) on the technical documentation reviewed and duly noted without remarks

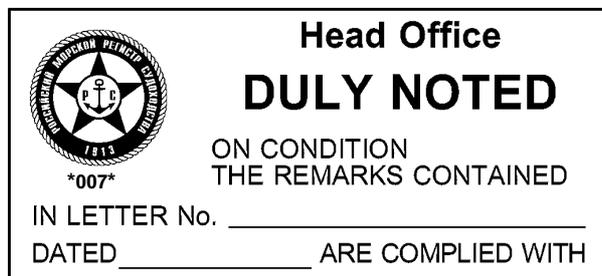
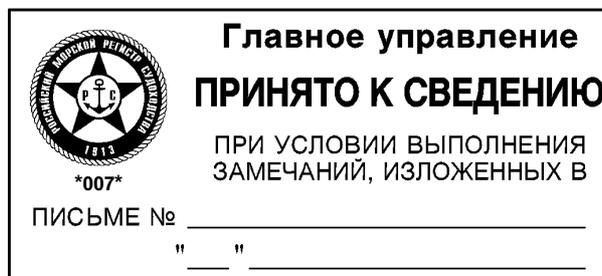


Fig. 8.3-2
Stamps (in Russian and English) on the technical documentation reviewed and duly noted with remarks

8.6 In case of a single approval of the technical documentation on materials and products (refer to Section 1, Part I "General Regulations for Technical Supervision"), an entry on limitation of the material or product application (e.g., "for Project 15010", etc.) shall be made in the approval stamp or under the stamp and this shall be also indicated in the conclusion letter.

8.7 The requirements laid down by RS in the course of approval of the design documentation shall be taken into account:

in two-stage review (refer to 3.5.1), at the detailed design documentation development stage to the satisfaction of the RS Branch Office in charge of review and approval;

in single-stage review (refer to 3.5.2), by appropriate updating of the documentation bearing stamps shown in Figs. 8.1-2 and 8.3-2 to the satisfaction of the RS Branch Office in charge of technical supervision during construction (manufacture) of the item.

In both cases the RS Branch Offices shall communicate information on canceling the remarks to the Register Branch Office, which has approved the design as a whole, not later than one month before the delivery of the first ship of the series (item).

8.8 The detailed design documentation shall be approved without any remarks (refer to Figs. 8.1-1 and 8.3-1). The approval is issued only upon canceling all the remarks by the designer.

8.9 Copies of the documents bearing the original stamps of the Register are control copies.

8.10 One set of the approved design documentation on ships, materials and products together with the conclusion letter are sent to the designer and the

RS Branch Office, which will be in charge of review of the detailed design documentation or technical supervision during construction (manufacture) of the item. The third set of the approved documentation is kept in the Register Branch Office that has reviewed the documentation.

Upon approval of the detailed design documentation, one set is returned to the designer, the other is kept by the RS Branch Office, which has reviewed the documentation. If specially agreed upon with the RS Branch Office, another procedure for keeping approved detailed design documentation (e.g., at the designer or manufacturer where technical supervision will be effected, on conditions agreed upon with the RS Branch Office) may be adopted.

Where ship's construction is supervised by another RS Branch Office, one set of the detailed design documentation together with the conclusion letter shall be sent to this Branch Office.

8.11 Upon review and agreement of the final wording of the normative document, the Register sends to the organization, which submitted the document, an appropriate written confirmation on agreement of the document; the document itself with the Register stamp is kept in the Register Branch Office files as the control copy.

8.12 RHO carries out check review of the design technical documentation on ships, materials and products reviewed and approved by the RS Branch Offices on its behalf.

The order of review of the technical documentation in RHO and in the RS Branch Office is established by the appropriate RS internal normative documents (procedures, instructions).

9 DURATION OF VALIDITY OF TECHNICAL DOCUMENTATION APPROVAL (AGREEMENT)

9.1 The period of validity of Register's approval for ship's technical documentation (technical or technical detailed documentation) is limited by the period of contract validity for construction of the ship or series of sister ships.

In this case, it is mandatory to meet the requirements of international conventions and RS circulars with due regard for the dates set for their implementation during construction of ships according to the Register-approved technical documentation (refer to 9.5), and the RS Branch Office, being in charge of the technical supervision during construction of the ship, controls the implementation.

9.2 The validity of the Register approval of the technical documentation on materials and products in case of a single approval (refer to Section 1, Part I "General Regulations for Technical Supervision") is limited by the time of delivery of the materials and

products or construction of ships, for which the materials and products are intended.

9.3 The Register approval of the technical documentation on materials and products in case of type approval (refer to Section 1, Part I "General Regulations for Technical Supervision"), including the specifications, is valid for a period of six years.

9.4 Standards and other normative documents on materials and products shall be agreed for the period of their validity.

When revising the standards and normative documents they shall be checked to take account of the current RS rules.

9.5 Irrespective of the approval validity, the technical documentation on ships, materials and products, as well as agreed standards and other normative documents are subject to mandatory updating with regard to adopted

requirements of international conventions and agreements that have come into force after approval (agreement) of the documentation. All approved and agreed documentation is also subject to updating, having regard to the requirements of the RS circular letters that require their mandatory fulfillment.

9.6 The requirements of the RS rules as well as of international conventions and agreements that are in force on the date of submission of the documents shall be taken into consideration in the technical documentation submitted for re-approval (re-agreement) upon expiry of validity of its previous approval.

9.7 The Register approval (agreement) of the technical documentation loses its validity:

.1 upon expiry of approval validity (where the term is indicated);

.2 upon expiry of the documentation validity (where the term is indicated);

.3 in case amendments were introduced without consent of the Register into the approved (agreed) documentation dealing with the issues, which are within the Register terms of reference.

9.8 The Register may cancel its approval (agreement) of the technical documentation or change the terms of approval (agreement) in the following cases:

.1 if the documentation has not been timely brought in line with the provisions of international conventions and agreements, as well as with the requirements of the RS circular letters as set forth under 10.1;

.2 if the quality and reliability of materials and items are regularly low and do not meet the RS requirements.

10 INTRODUCTION OF AMENDMENTS INTO APPROVED (AGREED) TECHNICAL DOCUMENTATION

10.1 Any amendments to the technical documentation approved (agreed) by the Register that may relate to the requirements regulated by the RS rules or international conventions shall be approved (agreed) by the Register based on the results of review of the appropriate notifications on the amendments or of the reissued amended documents.

10.2 Review and approval of amendments to the design documentation shall be carried out by the Register Branch Office, which has approved this documentation.

10.3 Any amendments to the detailed design documentation made during the construction of the ship or the manufacture of the product that might affect solutions adopted in the design documentation shall be reviewed and approved by the Register Branch Office, which has approved the design documentation.

Amendments to the detailed design documentation that do not affect the solutions adopted in the design documentation shall be reviewed and approved by the RS Branch Office in charge of technical supervision of the development of the detailed design documentation or

the construction of the ship or the manufacture of the product.

10.4 Any amendments to the normative documents agreed by the Register shall be reviewed and agreed by the Register Branch Office, which has agreed these documents.

10.5 Any amendments to the specifications for the materials and products approved by the Register shall be reviewed and approved by the Register Branch Office, which has approved these specifications.

10.6 The procedure for review and approval (agreement) of amendments to the technical documentation referred to in 10.3 to 10.7 above may be altered or updated when necessary at the discretion of RHO in each particular case.

10.7 The Register Branch Office that is in charge of approval of the amendments made in the technical documentation approved earlier shall timely inform to that effect the RS Branch Office, which carries out technical supervision during construction of ship or manufacture of materials and products, respectively.

11 FINAL DOCUMENTATION ON A SHIP TO BE SUBMITTED TO THE REGISTER

11.1 Upon completion of construction, trials and commissioning of the ship, the final documentation shall be sent to the RS Branch Office, which activities cover the port of the ship registry, for information.

The amount of the documentation and the order of its submission shall be agreed upon with the RS Branch Office in charge of technical supervision during construction of the ship prior to completion of the ship construction. Where necessary, an appropriate entry shall be made in the contract on technical supervision signed between the RS Branch Office and the shipyard.

Approximate lists of the final documentation, which may be reduced or extended in each particular case depending on specific features of the ship structure, are given in Appendix.

In order to reduce the number of the final documents to be sent to the RS Branch Offices, combined drawings and layouts are allowed.

11.2 The final documents shall correspond to the constructions actually done on board, installed machinery, arrangements, equipment, systems, etc.

11.3 Each document shall be provided with a stamp "final" or "operating". The documents shall be signed by

a developer's official responsible for their development and correct information contained therein.

The list of final documentation shall bear the Register stamp (refer to Fig. 8.3-1).

11.4 The final documentation shall be sent to the RS Branch Office in one copy for the first ship of a series and a single ship. If ships of the same series are intended for operation under technical supervision of different RS Branch Offices, one complete set of the final documentation on the first ship of the series, operated under technical supervision of the particular RS Branch Office shall be sent to each RS Branch Office. In future only documents, to which major amendments have been made, and newly developed documents shall be sent to the RS Branch Offices for the ships of a series.

11.5 The final documentation on the first ship of a series and a single ship shall be sent to the RS Branch Offices not later than six months after commissioning of the ship, and for ships of a series, not later than three months after commissioning of the first ship of the series to a particular basin.

12 PROGRAMMES FOR COMPUTER-AIDED CALCULATIONS

12.1 DEFINITIONS

Algorithm is a set of a finite number of mathematical operations performed with initial data in a certain sequence and used for implementation of a calculation procedure.

Calculation method is a method for solving problem(s) of a certain class, based on more or less full idealization of a real physical object (construction or system), which includes a finite number of input and output parameters characterizing the object, and assumptions used to simplify the solution of the problem. The calculation method shall provide use of particular mathematical methods to arrive at numerical results, which are the parameters characterizing the object.

Calculation procedure is a set of methods for the practical solution of a particular problem, enabling to arrive at numerical results.

Onboard computer active system is a software system that uses, as input information, data from sensors automatically reading the contents of tanks and other ship loading parameters.

Onboard computer passive system is a software system that requires manual entry of input data for calculation.

Programme is a systematized sequence of mathematical computer-aided operations, which implements an algorithm for solving a problem.

Software is a totality of programmes intended for solving a certain problem (or a number of problems), using a shipborne computer of a certain type.

12.2 TYPE APPROVAL OF PROGRAMMES

12.2.1 Programmes of computer-aided calculations, which results are part of technical documentation to be submitted to the Register for approval according to 3.8, shall be approved by the Register.

The programmes are approved by, and the Type Approval Certificate for Computer Program (CTOII) is issued by RHO.

Programmes of computer-aided calculations used for automated counting, which come to performance of

separate computations for determination of auxiliary values, shall be duly noted by the Register.

12.2.2 Computer-aided calculation programmes, for which the Type Approval Certificate for Computer Program (CTOII) is issued in accordance with 12.2.1, shall be submitted to the Register before their application.

In separate cases, computer-aided calculation programmes may be presented to the Register together with the technical design documentation on the ship.

12.2.3 In order to obtain the Type Approval Certificate for Computer Program (CTOII), the materials shall be submitted to the Register containing the following:

- .1 name of the programme;
- .2 computer type, programming language, name of the programme developer;
- .3 technical documentation on the calculation procedure.

The procedures for calculations, which results are used in developing the technical documentation on the ship, shall be agreed upon with the Register.

The technical documentation required for the calculation procedure submitted to the Register shall contain: mathematical statement of a problem, description of a procedure (method) for solution of a problem with indication of restrictions on application, accuracy, convergence criteria as well as analysis of a proposed procedure and adopted assumptions for compliance with the RS rules, references, etc.

An appropriate reference shall be made for the calculation procedure already known (agreed);

.4 detailed instructions on use of the programme and preparation of the initial data with enclosure of type forms;

.5 test (check) examples of calculations with listing of the initial data and calculation results with explanation of all initial data and results.

On preliminary agreement with the Register, used as a test task for a computer may be:

calculations on the check task issued by the Register;
comparison with calculation using a reference programme, with results of full-scale and model experiments.

Test examples shall cover the whole range of the basic variable parameters.

The examples shall contain verification calculations for two types of ships for which type approval is requested. Where approval is requested for only one type of ship, a minimum of two examples for different hull forms of that type of ship shall be submitted.

For approval of a programme which is based on the input of hull form data, test examples shall include calculations for three types of ships or three different hull forms if approval is requested for only one type of ship;

.6 minimum configuration of a computer system required for programme operation in different modes and with different quantities of initial data, information on

type and number of necessary input-output devices, RAM and mass memory as well as on the type of the operation system, for use with which the programme is oriented.

Information on recognition of a particular programme by other classification societies or competent organizations may also be submitted to the Register.

In separate cases, based on the above recognition, the Register may allow to submit the documentation in the lesser scope.

The technical documentation on the calculation procedure and computer-aided calculation programme shall be submitted in duplicate.

The documentation shall have number, title and shall be registered in an established order.

12.2.4 When the calculation procedure is considered, account shall be taken of the following criteria:

- reliability of physical process representation;
- validity of assumptions;
- compliance of the calculation results with those of test calculations.

12.2.5 The programmes are checked for suitability of the algorithm for calculation procedure adopted, for correct algorithm logic as well as correlation between the results of calculations made according to the programme concerned and test examples.

The programmes shall also comply with the following requirements:

.1 provision shall be made in the programmes using large quantity of the initial data for checking these data before making calculations, including, where necessary, visual checking with plotted or printed output;

.2 the calculation programme shall present all relevant parameters of each loading condition. When making calculations, the user shall be provided with at least the following characteristics:

- deadweight data;
- lightship data;
- trim;
- draught at the draught marks and perpendiculars;
- summary of loading condition displacement, vertical centre of gravity, longitudinal centre of gravity and transverse centre of gravity, downflooding angle and corresponding downflooding opening;

compliance with stability criteria: listing of all criteria, the limit values, the obtained values and the conclusions (criteria fulfilled or not fulfilled).

If direct damage stability calculations are performed, the relevant damage cases shall be pre-defined for automatic check of a given loading condition.

.3 the software shall be reliable, i.e. to function fail-free within the whole calculation range and to provide the accuracy for a specified time, agreed upon with the Register;

.4 printed calculation results shall contain information on the initial data (including references to the data

bases used), values of the calculation results with indication of their designations as well as, in case use is made in the programme of the requirements of the RS rules or other RS normative documents, and international conventions, reference to the year of their edition.

Listing shall also contain information on the programme, necessary for its identification;

.5 the software shall have an easy system of inputting the required data and outputting the results and shall also provide the protection against input of unspecified data, such as:

input of weights and centre of gravity positions of cargoes (stores), which values exceed those specified for the particular space;

positioning of containers in the places already occupied, etc.;

.6 the software shall prevent a possibility of making any changes in the initial data by user as regards general arrangement, weight and centre of gravity position of the light ship;

.7 the Register does not restrict a programme builder in choosing a programming language and software development methods; the developed programmes, however, shall comply with the up-to-date requirements, including availability of a fetch protection unit, an unauthorized copying protection unit, etc.;

.8 the software shall provide the possibility of calling on the display of an easy and detailed guidance for user (HELP);

.9 decoding of basic terms and characteristics shall have English translation.

12.2.6 When the results of check calculations are verified using the submitted procedure and computer-aided calculation programme, account shall be taken both of compliance of calculation procedures and the programme with the above criteria and calculated values and parameters with the requirements of the RS rules.

12.2.7 The computational accuracy of the calculation programme results shall be within the acceptable tolerances of the results using the approved Information on Stability with identical input or an independent programme approved by the Register.

Programmes which use pre-programmed data from the approved Information on Stability as the basis for stability calculations, shall have zero tolerances for the printouts of input data.

Output data tolerances shall be close to zero, however, small differences associated with calculation rounding or abridged input data are acceptable. Differences associated with the use of hydrostatic and stability data for trims that differ from those in the approved Information on Stability, may be accepted subject to agreement with the Register.

When output data are calculated through programmes which use hull form models as their basis for

calculations, the tolerances shall be obtained by the formula:

$$\text{Deviation in \%} = \left\{ \frac{\text{base value} - \text{calculated value}}{\text{base value}} \right\} \cdot 100,$$

however, they shall not exceed those specified in Table 12.2.7.

The base value may be from the approved Information on Stability or an independent programme approved by the Register.

An example of pre-programmed initial data:

Hydrostatic data: displacement, abscissa and applicate of the centre of buoyancy, abscissa of the centre of floatation, height of metacenter and moment to trim 1 cm (all are as a function of draught).

Stability data: stability cross-curves or residual arms of form stability for corresponding angles of heel/trim as a function of displacement, stability limitations.

Data on spaces: volumes, coordinates of center of volumes and correction for free surface effect/heeling moments due to grain shifting (all are as a function of the level of space filling).

An example of output:

Hydrostatic data: displacement, abscissa and applicate of the centre of buoyancy, abscissa of the centre of floatation, height of metacenter and moment to trim 1 cm (all are as a function of draught and also for ship's actual trim).

Stability data: corrections for free surface effect, arms of stability curve, applicate of ship's centre of gravity, initial transverse metacentric height, limiting curve, permissible heeling moments due to grain shifting, stability criteria being used.

Data on spaces: calculated volumes, coordinates of center of volumes and corrections for free surface effect/heeling moments due to grain shifting (all are as a function of the level of space filling).

12.2.8 The Type Approval Certificate for Computer Program (CTOII) is issued for the programmes reviewed and verified in accordance with the provisions of these Rules. The Type Approval Certificate for Computer Program (CTOII) shall contain the name of the programme, names of the developing organization and the owner of the programme, a computer type, programming language, brief description of the calculation procedure, scope of application, grounds for issuing the Certificate.

12.2.9 When computer-aided calculations, which are part of the ship's technical documentation and which are performed according to the programme having the Type Approval Certificates are presented to the Register, a reference to the number of the Type Approval Certificate for Computer Program (CTOII) issued by the Register shall be made in these calculations.

12.2.10 The Type Approval Certificate for Computer Program (CTOII) issued by the Register for a programme loses its validity if changes affecting the subject agreed upon have been made in the programme.

Table 12.2.7

Parameter evaluated	Tolerance
Hull form dependent	
Displacement	2 %
Longitudinal center of buoyancy, from after perpendicular, X_C	1 % / 50 cm max
Vertical center of buoyancy, Z_C	1 % / 5 cm max
Transverse center of buoyancy, Y_C	0,5 % of B / 5 cm max
Longitudinal center of flotation, from after perpendicular, X_f	1 % / 50 cm max
Moment to trim 1 cm	2 %
Transverse metacentric height	1 % / 5 cm max
Longitudinal metacentric height	1 % / 50 cm max
Cross curves of stability	5 cm
Compartment dependent	
Volume or deadweight	2 %
Longitudinal center of gravity, from after perpendicular, X_V	1 % / 50 cm max
Vertical centre of gravity, Z_V	1 % / 5 cm max
Transverse center of gravity, Y_V	0,5 % of B / 5 cm max
Free surface moment	2 %
Shifting moment	5 %
Level of contents	2 %
Trim and stability	
Draughts (forward, aft, mean)	1 % / 5 cm max
Initial metacentric height (GMt)	1 % / 5 cm max
Righting curve levers (GZ values)	5 % / 5 cm max
Free surface correction	2 %
Downflooding angle	2°
Equilibrium angles	1°
Distance to unprotected openings or margin line from waterline (if applicable)	± 5 % / 5 cm max
Areas under righting arm curve	5% or 0,0012 mrad

12.3 APPROVAL OF SHIPBORNE COMPUTER SOFTWARE USED FOR SOLVING PROBLEMS ON EVALUATION OF TRIM, STABILITY AND STRENGTH (FOR A PARTICULAR SHIP)

12.3.1 General.

12.3.1.1 Where a shipborne computer is used for evaluation of ship's trim, stability or strength, the appropriate software shall be approved by the Register for application on board a particular ship. In such a case, the base software module shall have the Type Approval Certificate for Computer Program (CTOII) (refer to 12.2).

12.3.1.2 These requirements are applicable to onboard computers when using passive systems and the off-line operation mode of active systems.

12.3.1.3 The stability calculated using an onboard computer shall be checked with regard to all the stability criteria applicable to the ship.

12.3.1.4 The scope of calculations shall correspond to the Information on Stability approved by the Register. The input and output data shall, as far as practicable, be easily compatible in terms of contents and format with those in the Information on Stability so as to allow the operator to familiarize themselves promptly with the stability calculations.

12.3.1.5 Unit measures shall be clearly specified and uniformly used in all calculations. Where different measurement systems are used in the software, input

errors shall be ruled out. The software shall provide that all the necessary data are displayed as well as printed out in the measurement systems used.

12.3.1.6 Copies of all initial data needed for the programme operation shall be stored on a separate disk or diskettes in duplicate.

12.3.1.7 The programme shall have a simple command, which allows return to main menu from any working window.

12.3.1.8 The programme shall warn the user of any input errors and in cases where the calculation results do not comply with the requirements of the RS rules, as well as in case of a wrong use of the very programme.

12.3.1.9 The programme shall monitor operation and activate an alarm when the programme is incorrectly or abnormally used.

12.3.1.10 The language in which the stability information is displayed and printed out shall be the same as used in the Stability Information. For ships engaged on international voyages, it is allowed to use only English when developing onboard computer software.

12.3.1.11 Onboard computer software and any data stored in the system shall be protected from corruption by loss of power.

12.3.1.12 Every page of the calculation result printout shall contain the identification number of the programme including the version number, name of the ship, printing-out date and load condition indication.

12.3.1.13 The software shall be installed in a shipborne computer of a type approved by the Register or in two unapproved computers. The requirements for computers and computer-based systems on board sea-going ships are set forth in Part XV "Automation" of the Rules for the Classification and Construction of Sea-Going Ships. In case where two computers are used each shall be fitted with a monitor and a printer, and both computers shall be subjected to acceptance tests.

12.3.2 Software approval procedure.

12.3.2.1 To make use of software on board a particular ship possible, the software functioning shall be checked and Report (form 6.3.29) based on the check results issued. In order to obtain this Report, the following documentation shall be submitted to RHO:

- .1 Manual for User, which shall contain:
 - identification number, name of ship;
 - clear and definitive commands with the use of illustrations and diagrams;
 - general description of the programme, including its identification, number and version date;
 - a copy of the Type Approval Certificate for Computer Program (CTOII);
 - requirements for the hardware parameters needed for normal start and functioning of the programme;
 - instruction for installation of programme on onboard computer;
 - description of messages on errors and warnings, which are most likely to occur, with the indication of sequence of actions to be taken by the user in such cases;
 - light ship mass and coordinates of centre of gravity with the indication of the source of information;
 - deadweight components for each test condition;
 - list of permissible still water shear force and bending moment values specified by the Register and, if necessary, torsion load;
 - if necessary, correction factors for the shear forces;
 - if necessary, limitations on the cargo mass for each hold and for each pair of adjacent holds, as a function of the mean draft lengthwise the hold (holds);
 - a sample of the calculation procedure accompanied by explanations and a sample of an output data printout;
 - a sample of each screen dump displayed with explanatory text;
- .2 Information on Stability and Information on Damage Stability, including subdivision layout, approved by the Register;
- .3 permissible bending moment and shear force values in the hull sections under control approved by the Register;
- .4 solution printouts of the test examples chosen on agreement with the Register.

The test examples shall be selected in such a way as to cover the whole range of load draughts (from the light ballast condition to the deepest envisaged loaded condition) and shall include at least one departure and one arrival condition. Calculations shall be provided for

at least four loading conditions, taken from the ship's approved stability information. For ships carrying liquids in bulk and ships carrying grain in bulk at least one of the conditions shall include partially filled cargo spaces. In the test examples selected, each cargo hold shall be at least once loaded.

The approval consists in checking the software functioning in the presence of the Register representative. The Register representative shall verify that the following data, used by the calculation programme, is consistent with arrangements and most recently approved lightship characteristics of the ship according to approved plans and documentation:

- identification of the calculation programme including version number;
- main dimensions, hydrostatic particulars and, if applicable, the ship profile;
- the position of the forward and after perpendiculars, and if appropriate, the calculation method to derive the forward and after draughts at the actual position of the ship's draught marks;
- ship lightweight and centre of gravity derived from the most recent inclining test;
- lines plan, offset tables or other suitable presentation of hull form data if necessary to check the input data;
- compartment definitions, including frame spacing, and centres of volume, together with capacity tables, free surface corrections;
- cargo and consumables distribution for each loading condition.

The following procedures shall be followed when testing the software:

- retrieve at least one test load case and start a calculation run; compare the stability results with those in the documentation;
- change several items of deadweight (tank weights and the cargo weight) sufficiently to change the draught or displacement by at least 10 per cent. The results are to be reviewed to ensure that they differ in a logical way from those of the approved test condition;
- revise the above modified load condition to restore the initial test condition and compare the results; the relevant input and output data of the approved test condition are to be replicated;
- alternatively, one or more test conditions shall be selected and the test calculation performed by entering all the necessary deadweight data manually; the results shall be verified as identical to the results in the approved test conditions.

Where satisfactory convergence of the results for some parameters has not been achieved, appropriate clarifications shall be presented, which then shall be reflected in the Register Report (form 6.3.29) and/or Manual for User.

The Report (form 6.3.29) is issued in the Russian and English languages with approved check examples.

12.3.3 Acceptance tests of the software shall be conducted on board ship in the presence of the Surveyor to the Register with issuance of the Register Report (form 6.3.10). Along with that:

.1 a check shall be made to ensure that the Manual for User duly noted by the Register is available on board;

.2 a check shall be made to ensure that the Report (form 6.3.29) with approved check examples is available on board;

.3 the software shall be installed in a computer of approved type or in two computers of unapproved type;

.4 the Information on Stability and Strength, Information on Damage Stability, on which software

operation has been tested and which have been indicated in the Report (form 6.3.29), shall not be updated since the issue of the Report;

.5 solution results of the check examples shall be the same as the results of the approved examples attached to the Report (form 6.3.29).

12.3.4 Where the ship, while in service, experiences changes in general arrangement, light ship mass, loading plans, the Report (form 6.3.29) is cancelled. The software for the new parameters of the ship shall be once more subject to the approval procedure according to 12.3.2.

APPENDIX

LIST OF FINAL DOCUMENTATION ON A SHIP TO BE SUBMITTED TO THE REGISTER¹**1 GENERAL**

- | | |
|---|--|
| 1.1 List of final documentation on a ship. | 1.5 List of amendments to the technical design. |
| 1.2 Specification for all parts. | 1.6 List of equivalents allowed by the Register. |
| 1.3 General arrangement drawing. | 1.7 List of spare parts. |
| 1.4 List of machinery and equipment installed on board the ship, with brief indication of their technical characteristics. | 1.8 Drawing showing the location of the IMO ship identification number. |

2 STABILITY, UNSINKABILITY

- | | |
|--|---|
| 2.1 Lines drawing. | 2.7 Information on Stability and Instructions on Taking and Consuming Liquid Cargoes and Ballasting. |
| 2.2 Summary table of displacements, centre of gravity positions, trim and initial stability for different loading conditions. | 2.8 Information on Damage Trim and Stability or Information on the Effect of Flooding. |
| 2.3 Table of tank capacities. | 2.9 Information on Stability for the Ship Loaded with Grain. |
| 2.4 Draft mark arrangement plan and load line. | 2.10 Layout of watertight compartments. |
| 2.5 Inclining Test Report or Weighing Report, if the ship is exempted from the inclining test. | 2.11 Damage Control Plan. |
| 2.6 Updated stability calculation. | 2.12 Operating manual on water level detection system. |

3 HULL

- | | |
|---|---|
| 3.1 Midship section. | 3.9 Propeller brackets and bossings. |
| 3.2 Constructional profile. | 3.10 Main machinery seatings and boiler bearers with bottom construction in that area. |
| 3.3 Deck and platform plans. | 3.11 Hydrofoil system and air cushion skirt plans. |
| 3.4 Double (single) bottom plan. | 3.12 Loading instructions for ships 65 m in length and more. |
| 3.5 Shell expansion (for glass reinforced ships only in case the outer shell plating has different thickness). | 3.13 Information (Booklet) on Stability and Strength During Loading, Unloading and Arrangement of Bulk Cargoes Other than Grain. |
| 3.6 Longitudinal and transverse bulkheads. | |
| 3.7 After end framing and sternframe. | |
| 3.8 Fore end framing and stem. | |

¹ Given in the List are approximate designation of particular final documents adopted only to reflect their technical essence.

4 ARRANGEMENTS, EQUIPMENT, OUTFIT, LIFE-SAVING APPLIANCES AND SIGNAL MEANS

- 4.1 Stock list.
- 4.2 Arrangement plan of survival craft and personal life-saving appliances.
- 4.3 Arrangement plan of sound signal means and navigation lights.
- 4.4 Arrangement plan of openings in the hull, superstructures and deckhouses as well as in subdivision bulkheads with indication of coaming heights, types, designs and basic dimensions and parameters of closing appliances.
- 4.5 General arrangement plan of rudder and steering gear with indication of basic dimensions, design and material, main components, type and main parameters of steering gear (main and auxiliary).
- 4.6 General arrangement plan of anchor arrangement with indication of types, principal dimensions (parameters) of components, type and basic parameters of anchor machinery.
- 4.7 General arrangement plan of mooring and towing arrangements with indication of types, basic parameters of the equipment, main characteristics of mooring and towing ropes, type and basic parameters of mooring and towing machinery.
- 4.8 General arrangement plan of fittings used to prevent shifting of cargo with indication of the design, material and basic dimensions (parameters) of main components of the fittings.
- 4.9 Arrangement plan of emergency outfit.
- 4.10 General arrangement plan of cargo handling gear with indication of principle characteristics (safe working load, operation areas, outreach, cargo lifting and lowering speed, maximum and minimum outreach, slewing speed, etc.).
- 4.11 General view drawing of cargo handling gear together with specification of associated machinery, components and safety devices.
- 4.12 Drawing (scheme) of derrick and crane rigging.
- 4.13 Drawing of attachments of cargo masts, crane, winch and reel foundations to ship structures and of hull strengthening in way of their installation.
- 4.14 Drawing of securing of cargo handling gear in the stowing for sea position.
- 4.15 Drawing of securing timber deck cargo.

5 FIRE PROTECTION

- 5.1 Fire plan.
- 5.2 Arrangement plan of fire-proof divisions (including doors) with indication of numbers of the Type Approval Certificates.
- 5.3 Schemes of insulation of spaces with indication of type insulation constructions.
- 5.4 Deck covering schemes.
- 5.5 Fire fighting system diagrams.

6 MACHINERY INSTALLATION

- 6.1 General arrangement plans of machinery, boilers and equipment in machinery and boiler spaces and in spaces of emergency sources of electrical power.
- 6.2 General arrangement plan of shafting.
- 6.3 CPP system drawings.
- 6.4 General view of propeller.
- 6.5 Stern-tube drawing.
- 6.6 Diagram and description of remote control system for main machinery complete with information on equipment of remote control stations with control devices, indication and alarm signalling devices, means of communication and other arrangements.
- 6.7 Shafting alignment calculation. Torsional vibration calculations and torsioning results.

7 SYSTEMS AND PIPING

- 7.1** Ship system diagrams:
- .1** bilge system;
 - .2** ballast system;
 - .3** waste water, sewage and scupper systems;
 - .4** fuelling and fuel transfer systems;
 - .5** sounding, air and overflow pipes;
 - .6** cargo and stripping systems (on oil tankers);
 - .7** vent system (on oil tankers);
 - .8** ventilation system of accommodation, cargo, machinery and production spaces;
 - .9** liquid cargo heating system;
 - .10** arrangement plan of bottom and side fittings.
- 7.2** Machinery installation piping diagrams:
- .1** live and exhaust steam, blow-off pipes;
 - .2** feed water, condensate and evaporator;
 - .3** fuel;
 - .4** lubricating oil;
 - .5** cooling;
 - .6** compressed air;
 - .7** fuel, water and oil heating;
 - .8** exhaust gas pipes and uptakes.

8 REFRIGERATING PLANTS

- 8.1** Refrigerant system diagram.
 - 8.2** Cooling medium and cooling water system diagram.
 - 8.3** Basic diagram of hold air cooling.
 - 8.4** Arrangement plan of equipment in refrigerating machinery space with indication of escape routes.
 - 8.5** Arrangement plan of equipment in refrigerated spaces.
 - 8.6** Insulation drawing with technical specifications of insulating materials.
 - 8.7** Basic diagram of telethermometer station and arrangement of thermometer tubes.
 - 8.8** General arrangement plan of equipment in refrigerant storage spaces with stationary receivers.
- Note.* Only documentation referred to in 8.1, 8.4, 8.8 shall be presented for unclassified refrigerating plants.

9 ELECTRICAL EQUIPMENT

- 9.1** Circuit diagrams of electrical power distribution from main and emergency sources: power mains, lighting (to section switchboards) and navigation lights.
 - 9.2** Circuit diagrams of main and emergency switchboards, control desks and other switchboards of non-standard design.
 - 9.3** Circuit diagram of main current, excitation, control, monitoring, signalling, protection and interlocking of the electric propulsion plant.
 - 9.4** Circuit diagram of outer connections of ship's control apparatus, telephone communication, general alarm and fire detection and alarm systems.
 - 9.5** Circuit diagram of electric drives for steering gear, electrical remote control systems of rudder electric drive, protection and alarm.
 - 9.6** General arrangement plan of essential electrical equipment and electric propulsion plant.
 - 9.7** Lubricating oil diagrams of electrical machines.
 - 9.8** Air cooling diagrams of electric propulsion plant.
 - 9.9** Earthing diagrams of protection and lightning systems (only for glass reinforced plastic ships).
 - 9.10** Circuit diagrams of outer connections of devices for measuring non-electric values (level, pressure, temperature indicators, etc.).
 - 9.11** Layout plan of cable penetrations through watertight and fire bulkheads.
- Note.* Information on cross-sectional areas of cable conductors, types of cables, currents and protection shall be given in the documentation.

10 NAVIGATIONAL EQUIPMENT

10.1 Connection diagram of navigational equipment (with indication of types and cross-sectional areas of cable conductors).

10.2 Drawings (not less than two views) showing arrangement of navigational equipment and sources of power, as well as heating, ventilation, communication, alarm and lighting facilities in spaces intended for the installation of navigational equipment.

10.3 Drawings (plan and side view) showing arrangement of aerials as well as spaces intended for the installation of navigational equipment.

10.4 List of navigational equipment fitted on board with specification of manufacturer, type, supplier and information on approval of the equipment by the Register.

10.5 Bridge fields of vision drawings showing:

.1 the horizontal field of vision from the various workstations, including the arc of individual blind sectors and the sum of blind sectors forward of the beam;

.2 the vertical field of vision over the bow from the conning station and the workstation for navigation and

manoeuvring, including the line of sight under the upper edge of the window from standing working position at the workstation;

.3 window arrangement, including inclination, dimensions, framing and height of lower and upper edge above bridge deck surface as well as the height of the deckhead.

10.6 Bridge layout drawings showing:

.1 the bridge layout, including the configuration and location of all bridge workstations, including workstations for additional bridge functions;

.2 configuration and dimensions of workstation consoles including console foundations, and location of instruments and equipment in all workstation consoles.

10.7 In case of ships having a distinguishing mark **OMBO** in their class notation, the scope of technical documentation to be submitted shall be in accordance with the requirements of 1.3.7, Part V “Navigational Equipment” of the Rules for Equipment of Sea-Going Ships.

11 AUTOMATION

11.1 Basic and functional circuits of control and protection elements, devices and systems of main machinery and propellers (remote automated control systems).

11.2 Basic and functional circuits of control and protection elements, devices and systems of auxiliary machinery, electric-generation plants, main and auxiliary boilers, refrigerating plants.

11.3 Basic and functional circuits of control and protection elements, devices and systems of centralized and local warning alarm, indication and recording systems.

11.4 General view drawings of separate devices, switchboards, panels of control and protection systems of

main machinery, propellers and auxiliary machinery, and their arrangement on board ship.

11.5 Structural drawings of sensors, alarms, instruments as well as control and monitoring switchboards and panels of the systems referred to in 11.3 to 11.5.

11.6 Description of power sources of the systems referred to in 11.3 to 11.5 and their wiring schemes.

11.7 Block diagrams of machinery control algorithms for computers and computer-aided systems applied in the plants subject to the Register technical supervision.

12 RADIO EQUIPMENT

12.1 Diagram of connections of radio equipment and commutation of aerials (with indication of types and cross-sectional areas of cable conductors and protection means from radio interference).

12.2 Drawing (plan and side view) of equipment arrangement in radio equipment spaces with indication of heating, ventilation, communication, alarm and lighting systems.

12.3 Drawing (plan and side view) of aerial arrangement with indication of the spaces intended for installation of radio equipment.

12.4 Drawing and diagram of radio equipment for motor lifeboats (if any).

13 ARRANGEMENTS AND EQUIPMENT FOR PREVENTION OF POLLUTION FROM SHIPS

13.1 For ships of all types:

.1 arrangement plan of equipment for prevention of pollution from ships;

.2 calculation of required capacity of holding tanks, oily water and sewage tanks, garbage containers and their arrangement plans.

13.2 For oil tankers, other than those referred to in 13.1:

.1 calculation of capacity of slop tanks and segregated ballast tanks;

.2 calculation of cargo tank length;

.3 arrangement plan of all tanks on board;

.4 calculation of assumed damages to the hull and hypothetical outflow of oil;

.5 subdivision plan and damage stability calculations;

.6 diagram of emergency oil transfer system;

.7 diagram of crude oil washing system and shade diagram (if applicable);

.8 plan showing arrangement of discharge outlets;

.9 diagram of transfer of oil residues into slop tank;

.10 operations and equipment manual for crude oil washing system (if applicable);

.11 operation manual for discharge monitoring and control system of ballast and washing water (if applicable).

13.3 For tankers carrying noxious liquid substances, other than those referred to in 13.1:

.1 arrangement plan of pump rooms;

.2 arrangement plan of cargo tank ventilation system;

.3 plan showing arrangement of discharge outlets;

.4 procedures and arrangements manual for discharge of noxious liquid substances.

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