2020

Introduction to the Classification Technical Rules

KR

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- Pt 1 Classification and Surveys (K/E) (2020) - Pt 2 Materials and Welding (K/E) (2020) - Pt 3 Hull Structures (K/E) (2019)(2020) - Pt 4 Hull Equipment (K/E) (2020) - Pt 5 Machinery Installations (K/E) (2020) - Pt 6 Electrical Equipment and Control Systems (K/E) (2020) - Pt 7 Ships of Special Service (Ch1-Ch4, Ch7-Ch10) (K/E) (2020) - Pt 7 Ships of Special Service (Ch5, Ch6) (K/E) (2020) - Pt 8 Fire Protection and Fire Extinction (K/E) (2020) - Pt 9 Additional Installations (K/E) (2020) - Pt 10 Hull Structure and Equipment of Small Steel Ships (K/E) (2020) - Pt 11 Common Structural Rules for Bulk Carriers (K/E) (2014) - Pt 12 Common Structural Rules for Double Hull Oil Tankers (K/E) (2014) - Pt 13 Common Structural Rules for Bulk Carriers and Tankers (K/E) (2020) - Pt 14 Structural Rules for Container Ships (K/E) (2020)	- Pt 1 Classification and Surveys (K/E) (2020) - Pt 2 Materials and Welding (K/E) (2020) - Pt 3 Hull Structures (K/E) (2020) - Pt 4 Hull Equipment (K/E) (2020) - Pt 5 Machinery Installations (K/E) (2019) - Pt 6 Electrical Equipment and Control Systems (K/E) (2020) - Pt 7 Ships of Special Service (Ch1-Ch4, Ch7-Ch10) (K/E) (2020) - Pt 7 Ships of Special Service (Ch5, Ch6) (K/E) (2019) - Pt 8 Fire Protection and Fire Extinction (K/E) (2020) - Pt 9 Additional Installations (K/E) (2018) (2020) - Pt 10 Hull Structure and Equipment of Small Steel Ships (K/E) (2020) - Pt 13 Common Structural Rules for Bulk Carriers and Tankers (K/E) (2019)
Rules for Offshore Structures	**Guidance for Offshore Structures**
- Rules for the Classification of Mobile Offshore Units (K/E) (2020) - Rules for the Classification of Mobile Offshore Drilling Units (K/E) (2020) - Rules for the Classification of Fixed Offshore Structures (K/E) (2014)	- Guidance Relating to the Rules for the Classification of Mobile Offshore Units (K/E) (2018) - Guidance Relating to the Rules for the Classification of Mobile Offshore Drilling Units (K/E) (2020) - Guidance for Floating Offshore Production Units (K/E) (2015) - Guidance for Floating Liquefied Gas Storage and Regasification Units (K/E) (2019) - Guidance for Floating Liquefied Gas Production Units (K/E) (2019) - Guidance for OSV (K/E) (2019)

Other Rules	Other Guidances
- Rules for the Classification of Steel Barges (K/E) (2020) - Rules for the Classification of Underwater Vehicles (K/E) (2015) - Rules for the Classification of FRP Ships (K/E) (2014) - Rules for the Classification of Floating Docks (K/E) (2020) - Rules for the Classification of High Speed and Light Crafts (K/E) (2020) - Rules for the Classification of Ships Using Low-flashpoint Fuels (K/E) (2020) - Rules for the Towing Survey of Barges and Tugboats (K/E) (2020) - Rules for the Classification of Dredgers (K) (2020)	- Guidance Relating to the Rules for the Classification of Steel Barges (K/E) (2016) - Guidance Relating to the Rules for the Classification of Underwater Vehicles (K/E) (2020) - Guidance Relating to the Rules for the Classification of FRP Ships (K/E) (2014) - Guidance Relating to the Rules for the Classification of Floating Docks (K/E) (2015) - Guidance Relating to the Rules for the Classification of High Speed and Light Craft (K/E) (2020) - Guidance Relating to the Rules for the Classification of Ships Using Low-flashpoint Fuels (K/E) (2020) - Guidance for Approval of Manufacturing Process and Type Approval, Etc. (K/E) (2020) - Guidance for Floating Structures (K/E) (2010) - Guidance for Freight Containers (K/E) (2019) - Guidance for Single Point Mooring (K/E) (2017) - Guidance for Ships Carrying CNG in Bulk (K/E) (2011) - Guidance for WIG Craft (Wing-In-Ground Effect Craft) (K/E) (2019) - Guidance for Recreational Crafts (K/E) (2018) - Guidance for Large Yachts (K/E) (2014) - Guidance for Fuel Cell Systems on Board of Ships (K/E) (2015) - Guidance for Ships for Navigation in Ice (K/E) (2018) - Guidance for Approval of Risk-based Ship Design (K/E) (2015) - Guidance for Assessment of Sloshing Load and Structural Strength of Cargo Containment System (K/E) (2015) - Guidance for LNG Fuel Ready Ships (K/E) (2017)

Other Rules	Other Guidances
	- Guidance on Strength Assessment of Containerships Considering the Whipping Effect (K/E) (2017) - Guidance for Structural Strength Assessment of Pump Tower of LNG Carrier (K/E) (2017) - Guidance for Noise and Vibration (K/E) (2020) - Guidance for Shiplift and Transfer Systems (K/E) (2017) - Guidance for Battery Systems on Board of Ships (K/E) (2020) - Guidance for Maritime Cyber security Management System (K/E) (2020) - Guidance for Floating LNG Bunkering Terminal (K/E) (2018) - Guidance for approval of Service Suppliers (K/E) (2020) - Guidance for Autonomous Ships (K/E) (2020) - Guidance for DC Distribution Systems (K/E) (2020) - Guidance for Exhaust gas Emission Abatement System (K/E) (2020) - Guidance for Type Approval of Maritime Cyber security (K/E) (2020) - Guidance for Composite Propellers (K/E) (2019) - Guidance for Software Conformity Certification (K/E) (2019) - Guidance for Integrated Software Process Management (K/E) (2020)

2. USER'S GUIDE TO CLASSIFICATION TECHNICAL RULES

2.1 General

2.1.1 The purpose of this General has been prepared to introduce kinds, contents and user's guide for Classification Technical Rules published by Korean Register of Shipping (hereinafter called "the Society") to users.

2.1.2 Classification Technical Rules published by the Society are grouped into "Rules" and "Guidances" which mean all rules for the classification of ships, offshore installations and related equipment, etc., and "Guidance Relating to the Rules", which is prepared with the intent of giving details as to the treatment of the various provisions for items required the unified interpretations and items not specified in the Rules. The list of Classification Technical Rules is given in 1.

2.1.3 Amendments to the Classification Technical Rules that need to be implemented prior to publishing the Classification Technical Rules are issued without a printed copy of the entire Rules or the Guidances.

2.2 User's Guide

2.2.1 Enforcement

Classification Technical Rules, in principle, shall come into force after 3 months from the approved date and "Amendments and Effective Date" is recorded at the beginning of each Classification Technical Rules for ready use.

2.2.2 Format

"Rules for Steel Ships" are composed of 14 kinds and "Guidances for Steel Ships" are composed of 11 kinds.

"Rules for Offshore Structures" are composed of 3 kinds and "Guidances for Offshore Structures" are composed of 6 kinds.

"Other Rules" are composed of 8 kinds and "Other Guidances" are composed of 33 kinds.

2.3 Numbering System

2.3.1 "Rules for the Classification of Steel Ships" and "Guidance Relating to the Rules for the Classification of Steel Ships"

(1) In principle, the text consists of Part, Chapter, Section, Article, Paragraph, Sub-paragraph, (A), (a) and (i).

(2) An article consists of a section number and serial number, and the hundred means section number and the rest means serial number.

(e.g.) For eleventh article in **Section 2 ; 211.**

(3) The number of a figure or a table consists of part, chapter and serial number in each chapter.

The figure number is placed in the center under the figure, and the table number is placed in the top left hand corner of the table.

(e.g.) For eighth figure in **Chapter 7** of **Part 3; Fig 3.7.8**

For second table in **Chapter 1** of **Part 5; Table 5.1.2**

2.3.2 Other Rules and Other Guidance

The same as **2.3.1**

2.3.3 Classification Rules other than 2.3.1 and 2.3.2

(1) In principle, the text consists of Chapter, Section, Article, Paragraph, Sub-paragraph, (A), (a) and (i).

(2) The remainder are the same as those specified in **2.3.1.** The number of a figure or of a table consists of chapter and serial number in each chapter.

(e.g.) For ninth figure in **Chapter 3; Fig 3.9**

For tenth table in **Chapter 3; Table 3.10.**

2.4 Cross-Reference to Articles and Paragraphs

2.4.1 "Rules for the Classification of Steel Ships" and "Guidance Relating to the Rules for the Classification of Steel Ships"

(1) Where a paragraph in any chapter is quoted from an other chapter in the same part, the chapter, relevant article and paragraph are written in sequence.

(e.g.) For rules: in **Ch 1, 201. 1** (1), or in **Ch 1, 201. 1** (1) of the Guidance.

For guidances: in **Ch 1, 201. 1** (1) of the Rules, or in **Ch 1, 201. 1** (1) of the Guidance.

(2) Where a paragraph in any part is quoted from an other part, the part, chapter, relevant article and paragraph are written in sequence.

(e.g.) For rules: in **Pt 1, Ch 1, 201. 1** (1), or in **Pt 1, Ch 1, 201. 1** (1) of the Guidance.

For guidances: in **Pt 1, Ch 1, 201. 1** (1) of the Rules, or in **Pt 1, Ch 1, 201. 1** (1) of the Guidance.

2.4.2 Classification Rules other than 2.4.1

Where the contents of any rules are quoted in the rules other than **2.4.1,** the names of the rules, part, chapter, relevant article and paragraph are written.

(e.g.) Where **Pt 1, Ch 2, 202.** of "Rules for the Classification of Steel Ships" is quoted in "Rules for the Classification of Steel Barges"; **Pt 1, Ch 2, 202.** of **Rules for the Classification of Steel Ships**.

2.5 Cross-Reference to Figures and Tables

2.5.1 "Rules for the Classification of Steel Ships" and "Guidance relating to the Rules for the Classification of Steel Ships"

(1) Where a figure or a table in any chapter is quoted from an other chapter in the same part, the number of the figure (or the table) is written.

(e.g.) For rules: in **Fig 2.1.1** (or **Table 2.1.1**), or in **Fig 2.1.1** (or **Table 2.1.1**) of the Guidance.

For guidances: in **Fig 2.1.1** (or **Table 2.1.1**) of the Rules, or in **Fig 2.1.1** (or **Table 2.1.1**) of the Guidance.

(2) Where a figure or a table is quoted from an other part, the part and the number of the figure (or the table) are written.

(e.g.) For rules: in **Pt 2, Fig 2.1.1** (or **Table 2.1.1**), or in **Pt 2, Fig 2.1.1** (or **Table 2.1.1**) of the Guidance.

For guidances: in **Pt 2, Fig 2.1.1** (or **Table 2.1.1**) of the Rules, or in **Pt 2, Fig 2.1.1** (or **Table 2.1.1**) of the Guidance.

2.5.2 Classification Rules other than 2.5.1

Where a figure or a table of any rules is quoted in the rules other than **2.5.1,** the name of the rules, the part and the number of the figure (or the table) are written.

(e.g.) Where **Pt 3, Fig 3.3.1** (or **Table 3.3.1**) of "Rules for the Classification of Steel Ships" is quoted in "Rules for the Classification of Steel Barges": in **Pt 3, Fig 3.3.1** (or **Table 3.3.1**) of **Rules for the Classification of Steel Ships**.

2.6 Units

The SI-units (International System of Units) shown in **4.** are generally used in Classification Rules. However, the MKS-units (Metric System of Units) may be used together with SI-units, at the discretion of the Society. ⚓

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Section 14 Safety Valves
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Section 20 Level Indicators
Section 21 Electrical Equipment and Cables
Section 22 Cable Laying
Section 23 Automatic and Remote Control Systems
Section 24 Equipment related to Ventilation Systems in Oil Tankers
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Section 27 Materials for Refrigerated Chambers and Oil-impervious composition
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GUIDANCE FOR SHIPS CARRYING CNG IN BULK

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Section 3 Ship Arrangements
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Section 6 Materials of Construction
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Section 10 Electrical Installations
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Section 14 Filling Limits for Cargo Tanks
Section 15 Use of Cargo as Fuel
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GUIDANCE FOR RECREATIONAL CRAFTS

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CHAPTER 2 CLASSIFICATION SURVEYS
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Section 2 Kinds and Due Range of Surveys
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CHAPTER 3 MATERIALS
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Section 2 Metal Material and Welding
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CHAPTER 5 STABILITY AND BUOYANCY
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Section 3 Field of Vision from Steering Position

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Section 8 Electrical Devices for Ignition Protection

Section 9 Gas Installation System Tests
Section 10 Owner's Manual

CHAPTER 11 FIRE PROTECTION AND FIRE EXTINCTION
Section 1 Fire Protection
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CHAPTER 12 ESSENTIAL REQUIREMENTS FOR EXHAUST EMISSIONS FROM PROPULSION ENGINES
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Chapter 2 CLASSIFICATION AND SURVEYS

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Chapter 5 STABILITY AND SUBDIVISION

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Chapter 7 ELECTRICAL EQUIPMENT AND CONTROL SYSTEMS

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Section 5 Platings
Section 6 Stiffeners
Section 7 Transverses and Girders
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CHAPTER 5 STRUCTURE PRINCIPLES IN FRP
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Section 4 Hull Girder Strength
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PART 4 HULL EQUIPMENT

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Section 2 Rudder Force
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Section 5 Rudder Stocks
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GUIDANCE FOR FUEL CELL SYSTEMS ON BOARD OF SHIPS

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GUIDANCE FOR SHIPS FOR NAVIGATION IN ICE

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Section 3 Hull Structural Design
Section 4 Rudder and Steering Arrangements
Section 5 Engine Output
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Annex 2 Ice Load cases for propeller and the shape of the propeller ice torque excitation for the ships strengthened for navigation in ice and polar class ships

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Section 2 Definitions

CHAPTER 2 STAKEHOLDERS AND QUALIFICATION
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CHAPTER 4 SURVEY REQUIREMENTS
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2. Definition
3. General
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III STRENGTH ASSESSMENT OF LNG CONTAINMENT SYSTEM
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2. Comparative Method
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GUIDANCE FOR LNG FUEL READY SHIPS

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GUIDANCE ON STRENGTH ASSESSMENT OF CONTAINERSHIPS CONSIDERING THE WHIPPING EFFECT

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Section 2 Analysis Procedure

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CHAPTER 3 HYDRO-ELASTIC SIMULATION
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GUIDANCE FOR STRUCTURAL STRENGTH ASSESSMENT OF PUMP TOWER OF LNG CARRIERS
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CHAPTER 2 LOADS ON PUMP TOWER
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Section 1 Structure modeling
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GUIDANCE FOR NOISE AND VIBRATION
CHAPTER 1 GENERAL
Section 1 General
Section 2 Approval of plans and documents

CHAPTER 2 CLASSIFICATION SURVEYS
Section 1 General
Section 2 Classification Survey
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Section 2 Measurement Procedure

Section 3 Measurement Location
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CHAPTER 4 VIBRATION
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Section 4 Criteria

GUIDANCE FOR SHIPLIFT AND TRANSFER SYSTEMS

CHAPTER 1 GENERAL
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CHAPTER 3 TESTING
Section 1 Test criteria

GUIDANCE FOR BATTERY SYSTEMS ON BOARD OF SHIPS

CHAPTER 1 GENERAL
Section 1 General
Section 2 Drawings and Data

CHAPTER 2 CLASSIFICATION SURVEYS
Section 1 General
Section 2 Periodical Surveys
Section 3 Tests and inspections
Section 4 Tests after installation

CHAPTER 3 CONSTRUCTION AND EQUIPMENT
Section 1 General
Section 2 System Design
Section 3 Electric Power Converters
Section 4 Fire Protection and Fire Extinction
Section 5 Cooling
Section 6 Monitoring and Safety Systems
Section 7 Risk Assessment

GUIDANCE FOR MARITIME CYBER SECURITY SYSTEM

CHAPTER 1 GENERAL
Section 1 General

CHAPTER 2 CLASSIFICATION SURVEYS
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Section 2 Initial Surveys for the company
Section 3 Initial Surveys for the ship
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CHAPTER 4 REQUIREMENTS FOR CS SYSTEM OF THE SHIP
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Section 3 Ship Cyber Security Compliance 1 or CS1
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GUIDANCE FOR FLOATING LNG BUNKERING TERMINAL

CHAPTER 1 GENERAL
Section 1 General
Section 2 Definitions

CHAPTER 2 CLASSIFICATION AND SURVEYS
Section 1 General
Section 2 Classification Survey
Section 3 Surveys

CHAPTER 3 DESIGN CONDITION
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Section 2 Design Loads
Section 3 Corrosion Control Means and Corrosion Margins
Section 4 Risk Assessment

CHAPTER 4 MATERIALS AND WELDING
Section 1 General

CHAPTER 5 HULL CONSTRUCTION AND EQUIPMENT
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Section 2 Survival Capability and Location of Cargo Tanks
Section 3 Longitudinal Strength

Section 4 Structural Design and Analysis of the Hull
Section 5 Hull Arrangements
Section 6 Hull Equipment

CHAPTER 6 POSITIONING SYSTEM
Section 1 General
Section 2 Mooring Analysis
Section 3 Design of Mooring Lines, etc.
Section 4 Mooring Equipment
Section 5 Single Pint Mooring Systems
Section 6 Anchor Holding Power

CHAPTER 7 MACHINERY INSTALLATIONS
Section 1 General
Section 2 Piping Systems for Cargo Tanks
Section 3 Use of Natural Gas as Fuel

CHAPTER 8 ELECTRICAL EQUIPMENT AND CONTROL SYSTEMS
Section 1 Hazardous Area
Section 2 Electrical Equipment
Section 3 Control Systems

CHAPTER 9 VENTILATION
Section 1 General
Section 2 Mechanical Ventilation in the Cargo Area

CHAPTER 10 FIRE PROTECTION, FIRE EXTINCTION AND MEANS OF ESCAPE
Section 1 Fire Protection and Fire Extinction
Section 2 Means of Escape

CHAPTER 11 PERSONNEL PROTECTION
Section 1 Personnel Protection

CHAPTER 12 BUNKERING SYSTEM
Section 1 General
Section 2 Arrangement and Design of Bunkering Systems
Section 3 Bunker Transfer Systems
Section 4 Control, Monitoring and Safety Systems
Section 5 Communication and Lighting Systems
Section 6 Operation Requirements

GUIDANCE FOR APPROVAL OF SERVICE SUPPLIERS

INTRODUCTION
Section 1 General
Section 2 Objective
Section 3 Definitions
Section 4 Application
Section 5 Procedure for Approval and Certification

Section 6 Certification
Section 7 Information Regarding Alterations to the Certified Service Operating System
Section 8 Cancellation of Approval
Section 9 Existing Approvals

Appendix Part A Approval of Service Suppliers listed in IACS UR Z17

1. Firms engaged in thickness measurements on ships or mobile offshore units (Z17 Annex1-1)
2. Firms engaged in tightness testing of closing appliances such as hatches, doors etc. with ultrasonic equipment(Z17 Annex 1-2)
3. Firms carrying out an in-water survey on ships and mobile offshore units by diver or Remotely Operated Vehicle(ROV)(Z17 Annex 1-3)
4. Firms engaged in inspection and maintenance of fire extinguishing equipment & systems and self contained breathing apparatus(Z17 Annex 1-4 & Annex 1-7)
5. Firms engaged in servicing life saving appliances(Z17 Annex 1-5 & Annex1-13)
6. Firms engaged in inspections and testing of radio communication equipment (Z17 Annex 1-6)
7. Firms engaged in examination of Ro-Ro ships bow, stern, side and inner doors (Z17 Annex 1-8)
8. Firms engaged in annual performance testing of Voyage Data Recorders(VDR) and simplified Voyage Data Recorders(S-VDR)(Z17 Annex 1-9)
9. Firms engaged in inspections of low location lighting systems using photo luminescent materials and evacuation guidance system used as an alternative to low-location lighting system(Z17 Annex 1-10)
10. Firms engaged in sound pressure level measurements of public address and general alarm systems on board ships(Z17 Annex 1-11)
11. Firms engaged in testing of coating system in accordance with IMO Res.MSC. 215(82) as amended and IACS UI SC223 and/or MSC. 288(87) as amended (Z17 Annex 1-12)
12. Firms engaged in measurements of Noise level Onboard Ships(Z17 Annex 1-14)
13. Firms engaged in tightness testing of primary and secondary barriers of gas carriers with membrane cargo containment systems for vessels in service (Z17 Annex 1-16)
14. Firms engaged in survey using Remote Inspection Techniques(RIT) as alternative means for Close-up Survey of the structure of ships and mobile offshore units(Z17 Annex 1-16)

Appendix Part B Approval of Service Suppliers listed in IACS UR W35

1. Independent NDT company or NDT department/section that forms a part of a shipbuilding company providing NDT services on ship and/or offshore components/structures

Appendix Part C Approval of Service Suppliers not listed in IACS UR Z17

1. Firms engaged in vibration measurement in relation to habitability of ship
2. Firms engaged in visual and/or sample checks for preparation of inventory of hazardous materials(IHM)

GUIDANCE FOR AUTONOMOUS SHIPS

CHAPTER 1 GENERAL
Section 1 General
Section 2 Operation Plan
Section 3 Cybersecurity

CHAPTER 2 AUTONOMOUS SYSTEMS AND AUTONOMOUS SHIPS
Section 1 Configuration and Function of Autonomous Systems
Section 2 Requirements for Autonomous Systems and Autonomous Ships
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CHAPTER 3 RISK-BASED APPROVAL
Section 1 General
Section 2 Considerations when Approving Risk-based Design
Section 3 Measures to Reduce Risk

GUIDANCE FOR DC DISTRIBUTION SYSTEMS

CHAPTER 1 GENERAL
Section 1 General
Section 2 Drawings and Data

CHAPTER 2 SYSTEM AND ELECTRICAL EQUIPMENT
Section 1 System Design
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CHAPTER 3 CONTROL SYSTEMS
Section 1 General
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CHAPTER 4 CLASSIFICATION SURVEYS
Section 1 General
Section 2 Testing and Inspection
Section 3 Testing and Inspection of DC Circuit-breaker

CHAPTER 5 RISK ASSESSMENT
Section 1 General
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GUIDANCE FOR EXHAUST GAS EMISSION ABATEMENT SYSTEM

Section 1 Selective Catalytic Reduction system Using Ammonia Solutions or Urea Solutions as the Reductant Agents(SCR)
Section 2 Exhaust Gas Recirculation system(EGR)
Section 3 Exhaust Gas Cleaning system(EGC)
Section 4 Exhaust Gas Cleaning system Ready ships

GUIDANCE FOR TYPE APPROVAL OF MARITIME CYBER SECURITY

CHAPTER 1 GENERAL
Section 1 General

CHAPTER 2 TYPE APPROVAL OF CYBER SECURITY
Section 1 General
Section 2 Procedures for approval

CHAPTER 3 REQUIREMENTS FOR CYBER SECURITY
Section 1 General
Section 2 Identification and Authentication
Section 3 Use Control
Section 4 System Integrity
Section 5 Data Confidentiality
Section 6 Restricted Data Flow
Section 7 Timely Response to Events
Section 8 Resource Availability
Section 9 Software Application Requirements
Section 10 Embedded Device Requirements
Section 11 Host Device Requirements
Section 12 Network Device Requirements

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ANNEX 1 MAPPING THE REQUIREMENTS TO TYPES OF DEVICE

GUIDANCE FOR COMPOSITE PROPELLERS

CHAPTER 1 GENERAL
Section 1 General
Section 2 Approval procedure

CHAPTER 2 APPROVAL OF MANUFACTURING PROCESS
Section 1 General
Section 2 Plant audit
Section 3 Approval test

CHAPTER 3 INDIVIDUAL PRODUCT
Section 1 General
Section 2 Drawing approval
Section 3 Product inspection

GUIDANCE FOR SOFTWARE CONFORMITY CERTIFICATION

CHAPTER 1 GENERAL
Section 1 General

CHAPTER 2 CONFORMITY CERTIFICATION
Section 1 Certification Application
Section 2 Review and Survey
Section 3 Certification

CHAPTER 3 SOFTWARE DEVELOPMENT LIFE CYCLE
Section 1 General
Section 2 Planning
Section 3 Requirements
Section 4 Design and Implementation
Section 5 Validation and Verification
Section 6 Operation and Maintenance

GUIDANCE FOR INTEGRATED SOFTWARE PROCESS MANAGEMENT

CHAPTER 1 GENERAL
Section 1 General

CHAPTER 2 TEST AND SURVEY
Section 1 General

CHAPTER 3 SOFTWARE PROCESS
Section 1 General
Section 2 Roles and Responsibility of Stakeholder
Section 3 ISPM Process

CHAPTER 4 PROJECT PROCESS
Section 1 Management Process
Section 2 Support Process

CHAPTER 5 SOFTWARE LIFE CYCLE PROCESS
Section 1 Planning Process
Section 2 Requirement and Development Process
Section 3 Implementation Process
Section 4 Transition Process
Section 5 Maintenance Process

4. CONVERSION TABLE OF SI UNITS

Quantity	SI Unit	Other Unit	Remarks
mass	kg	t	1 t = 10^3kg
density (mass density)	kg/m^3	–	–
moment of inertia	kg-m^2	–	–
force	N	kgf	1 kgf = 9.81 N
moment (torque)	N-m	kgf-m	1 kgf-m = 9.81 N-m
stress	Pa or N/m^2	kgf/mm^2	1 kgf/mm^2 = 9.81 N/mm^2 = 9.81 MPa
pressure	Pa	kgf/cm^2 or bar	1 kgf/cm^2 = 0.981 bar = 98.1 kPa
work energy	J	kgf-m	1 kgf-m = 9.81 J
electric potential	J	kW-h	1 kW-h = 3.6 × 10^6 J
power	W	PS	1 PS = 735.5 W
temperature	K or ℃	C	x℃ = $(x+273.15)$ K
quantity of heat	J	cal or kcal	1 kcal = 4.19 kJ
heat flow rate	W	kcal/h	1 kcal/h = 1.16 W
frequency	Hz	–	–
rotational frequency	s^{-1}	min^{-1}(rpm)	rpm = 60 /s
velocity	m/s	knot	1 knot = 1852 m/h
plane angle	rad	°, ', "	1° = $\frac{\pi}{180}$rad

5. LOAD LINE MARKS

(1) Assignment of Load Line
The Society is authorized to assign Load Lines to vessels registered by the Korean Government and other Governments.

(2) Load Line Mark for Ocean Going Vessels without Timber Load Line
The centre of the ring is to be placed on each side of the ship at the middle of the length as defined in the International Convention on Load Lines, 1966. The ring, lines and letters are to be painted in white or yellow on a dark ground or in black on a light ground. They are also to be permanently marked on the sides of the ship as shown in **Fig 1.**

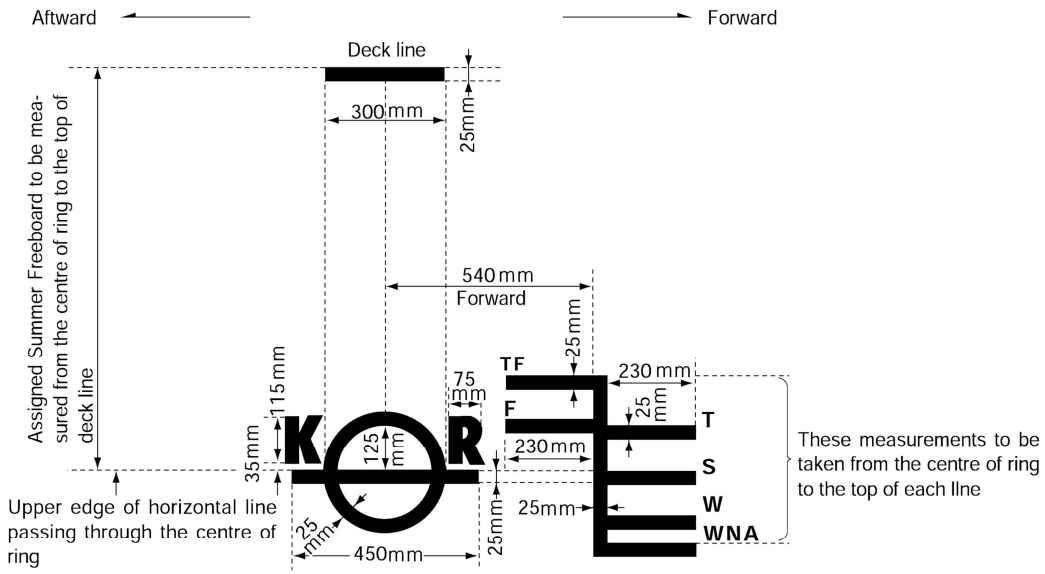

Fig 1

(3) Load Line Mark for Ocean Going Vessels with Timber Load Line
The centre of the ring is to be placed on each side of the ship at the middle of the length as defined in the International Convention on Load Lines, 1966. The ring, lines and letters are to be painted in white or yellow on a dark ground or in black on a light ground. They are also to be permanently marked on the sides of the ship as shown in **Fig 2.**

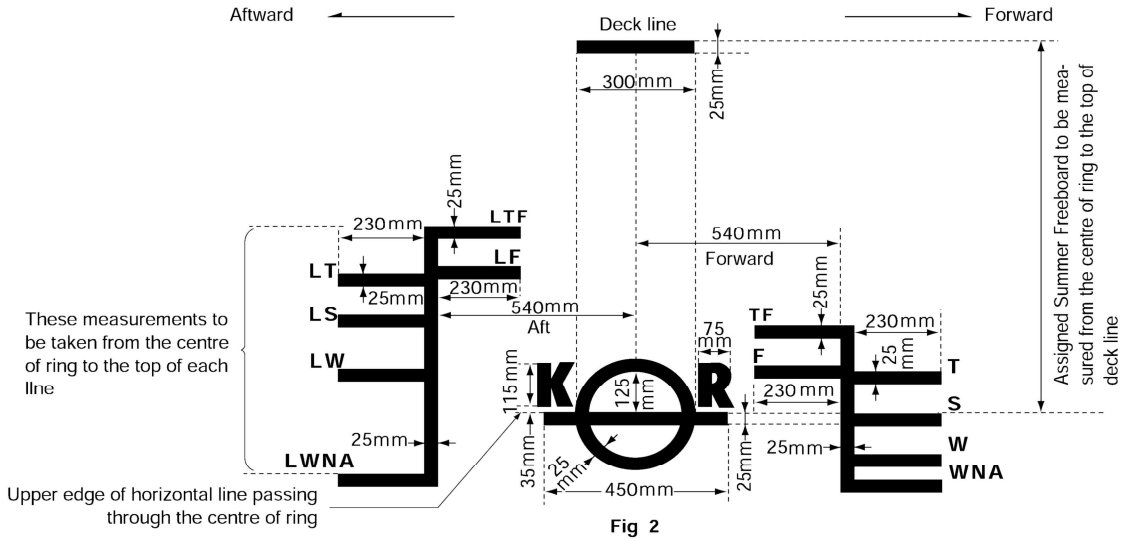

Fig 2

(4) For Korean flagged vessels which are over 12 m and for domestic voyage, the load line mark is to be as shown in **Fig 3** Marking method refers to (2). However, for the vessels navigating solely on lakes and rivers sub-paragraph (5) may be applied.

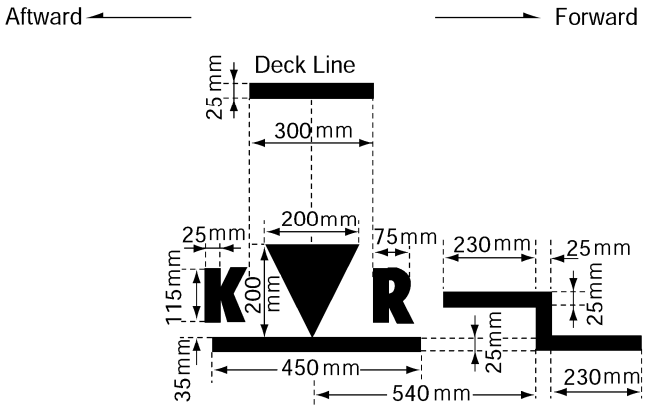

Fig 3

(5) For Korean flagged passenger vessels and dangerous cargo carriers which are less than 12 m in length and for domestic voyage, the load line mark is to be as shown in **Fig 4** Marking method refers to (2).

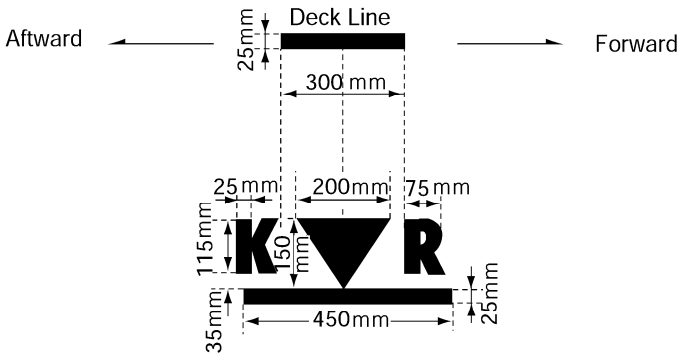

Fig 4

(6) For Korean flagged fishing vessels, the load line mark is to be as shown in **Fig 5** Marking method refers to (2).

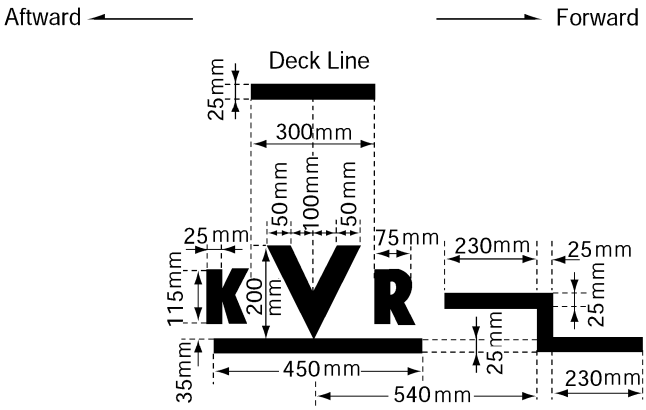

Fig 5

(7) For Korean flagged high speed crafts which are less than 12 m in length and for domestic voyage, the load line mark is to be as shown in **Fig 6** Marking method refers to (2).

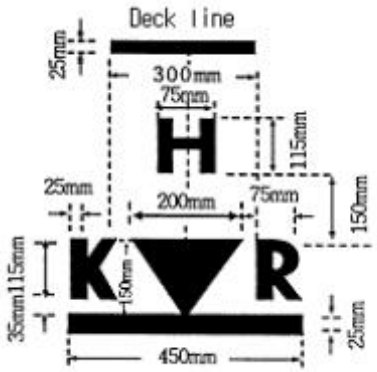

Fig 6

(8) For Korean flagged high speed crafts which are over 12 m in length and for domestic voyage, the load line mark is to be as shown in **Fig 7** Marking method refers to (2).

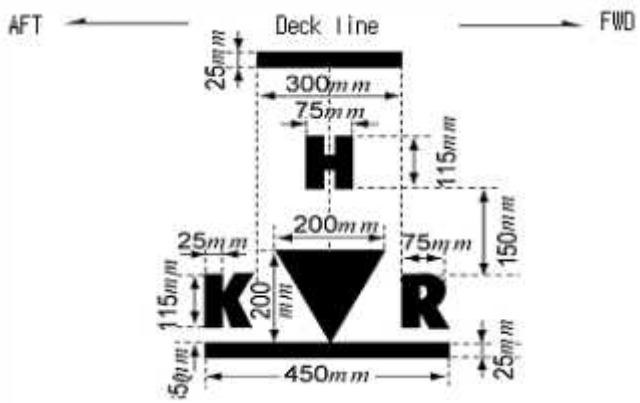

Fig 7

(9) For high speed craft subject to 2000 HSC Code engaged in international voyage, the load line mark is to be as shown in **Fig 8** Marking method refers to (2).

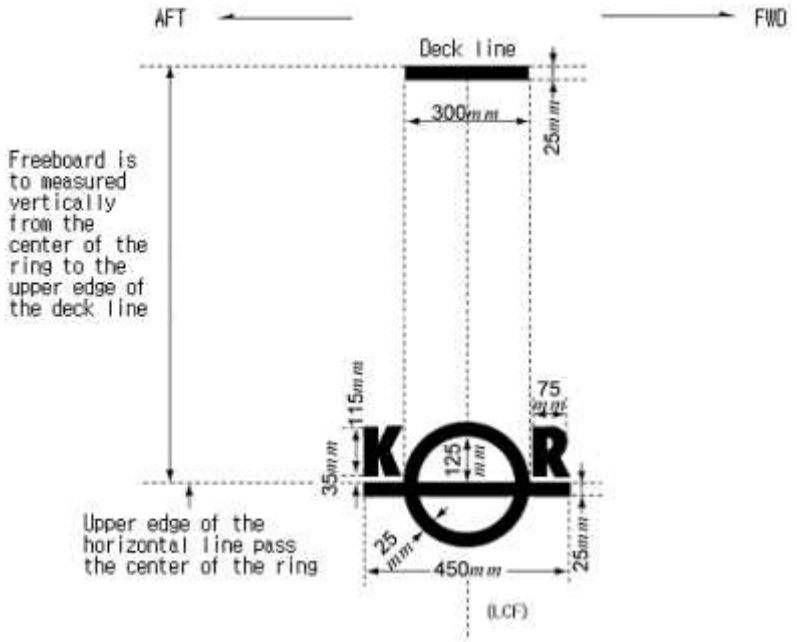

Fig 8

INTRODUCTION TO THE CLASSIFICATION TECHNICAL RULES

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