



CCS Rule Change Notice For:
RULES FOR CLASSIFICATION OF SEA-GOING
STEEL SHIPS

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CHINA CLASSIFICATION SOCIETY

CCS Rule Change Notice For:
RULES FOR CLASSIFICATION OF SEA-GOING STEEL
SHIPS

PART ONE

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CHAPTER 2 SCOPE AND CONDITIONS OF CLASSIFICATION

Appendix 1 LIST OF CLASS NOTATIONS FOR SEA-GOING SHIPS

Special Equipment and System Notations

Table G

Class notation	Description		Technical requirements
HMS		This notation may be assigned when only sensors monitoring the global longitudinal stress amidships are installed in the hull monitoring system	Ch. 21, Pt. 8 of the Rules
HMS(x)	Hull monitoring system	<p>This notation may be assigned when not only sensors monitoring the global longitudinal stress amidships are installed in the hull monitoring system, but also sensors/components monitoring other parameters are selected, where within the brackets there will be letters specifying the selected sensors/components and multiple letters are separated by comma “,”. The following sensors/components may be selected for the hull monitoring system:</p> <p>G_n: Sensor monitoring the global hull strain D_n: Sensor monitoring the local hull strain O_n: Sensor monitoring the propulsion shaft(s) output A_n: Sensor monitoring the axial acceleration M_n: Device for monitoring of hull rigid body motions (six degrees of freedom) P_n: Sensor monitoring the transient sea pressure acting on the hull (slamming) S_n: Sensor monitoring the liquid motion pressures in tanks (sloshing) T_n: Sensor monitoring the temperature B_n: Device for monitoring the wave W_n: Wind sensor N_n: Navigation sensors C_n: Online link to loading computer that is continuously up-dating the loading condition <u>Note: n denotes number of sensors or devices</u></p>	
HMS-HSC		This notation may be assigned to the hull monitoring system installed on high speed craft	
FC-FULL	Fuel cell power systems	Ships are not provided with other power source except the fuel cell power system. The fuel cell power system provides power to all equipment onboard the ship (propulsion, steering gears and other essential equipment, emergency equipment as well as other equipment) and complies with the provisions of the Guidelines	Guidelines for Application of Fuel-Cell Power Systems
FC-POWER 1		Ships are provided with the diesel generating set and the fuel cell power system. The fuel cell power system provides power to essential equipment of the ship and complies with the provisions of the Guidelines	
FC-POWER 2		Ships are provided with the diesel generating set and the fuel cell power system. The fuel cell power system provides power to non essential equipment and non-emergency equipment and complies with the provisions of the Guidelines	
<u>Methyl/Ethyl Alcohol Fuel</u>	<u>Fueled by methyl/ethyl/ alcohol</u>	<u>This notation may be assigned to power ships fueled by methyl/ethyl/ alcohol</u>	<u>PART ONE of Guidelines for Ships Using Alternative Fuel</u>
<u>FC-FULL</u>	<u>Fuel cell power system</u>	<u>This notation may be assigned provided that: the ship is not provided with other power source except the fuel cell power system, and the fuel cell power system provides power to all equipment onboard the ship (propulsion, steering gears and</u>	<u>PART TWO of Guidelines for Ships Using Alternative Fuel</u>

Class notation	Description		Technical requirements
		<u>other essential equipment, emergency equipment as well as other equipment)</u>	
<u>FC-POWER 1</u>		<u>This notation may be assigned provided that: the ship is provided with the diesel generating set and the fuel cell power system, and the fuel cell power system provides power to essential equipment of the ship</u>	
<u>FC-POWER 2</u>		<u>This notation may be assigned provided that: the ship is provided with the diesel generating set and the fuel cell power system, and the fuel cell power system provides power to non-essential equipment and non-emergency equipment</u>	
<u>Biodiesel Fuel</u>	<u>Fueled by biodiesel fuel or the mixture of biodiesel and regular fuel</u>	<u>This notation may be assigned to power ships fueled by biodiesel fuel or the mixture of biodiesel and regular fuel</u>	<u>PART THREE of Guidelines for Ships Using Alternative Fuel</u>

CHAPTER 4 SURVEYS DURING CONSTRUCTION

Appendix 1 Hull Survey for New Construction

Items for Hull Survey

Table 1

No.	Shipbuilding function	Survey requirements for classification	Survey method required for classification	Rules and IACS ^① requirements	Statutory requirements and relevant reference	Documentation available to Surveyor during construction	Ship construction file	Specific activities	Proposals for the project
	Shipbuilding quality control function								
2	Steel preparation and fit-up								
2.5	Conformity for critical areas, <u>when defined</u> , with alignment/fit-up or weld configuration	Check alignment/fit-up/gap against approved drawings	Patrol Witness and review	IACS Rec.47		Shipbuilder's and recognised standards and Rules as applicable, approved plan or standard, builder's records	Approved plans of critical areas if applicable	Verify that the information relevant to the latest approved drawings is available at the workstations	
								Verify the processes to ensure satisfactory fit-up and alignment at all workstations	
								Verify that edge preparations are reinstated where lost during fitting operations	
								Verify remedial procedures are in place to compensate for wide gaps and	

^① IACS Recommendations indicated in this Table are not mandatory requirements, IACS UI are given in CCS Guidelines for Implementation of Statutory Surveys (Ships Engaged on International Voyages).

No.	Shipbuilding function	Survey requirements for classification	Survey method required for classification	Rules and IACS [®] requirements	Statutory requirements and relevant reference	Documentation available to Surveyor during construction	Ship construction file	Specific activities	Proposals for the project
								alignment deviations	

Annex 2 Requirements for Tankers and Bulk Carriers subject to SOLAS Reg. II-1/3-10 (Goal-based ship construction standards for bulk carriers and oil tankers)

3. Ship Construction File (SCF)

3.2 The SCF shall be reviewed^③, at the time of new building, in accordance with the requirements of paragraphs 3.1.1 and 3.1.2 and the normal storage location shall be distinguished.

3.2.1 For the SCF stored on board ship, the surveyor is to verify that the information is placed on board the ship, upon completion of ship construction.

3.2.2 For the SCF stored on shore archive, the surveyor is to verify that the information is stored on shore archive by examining the list of information included on shore archive, upon completion of ship construction.

③ “Review” means the examination of the SCF that is carried out by the surveyor, at the end of the newbuilding process, in order to confirm that drawings and documents required under the paragraph 3 of the annex, plus the possible additional drawings/documents provided by the shipyard, as per the Ship Constructional File (SCF) list of drawings/documents are present in the copies of the SCF stored on board and in the ashore archive.
The “review” is not to be intended as an assessment of the drawings/documents in order to verify their compliances with the applicable Rules/Regulations.

CHAPTER 5 SURVEYS AFTER CONSTRUCTION

Section 1 GENERAL PROVISIONS

5.1.7 Documentation on board

5.1.7.4 Review of documentation on board

(2) For tankers and bulk carriers subject to SOLAS Reg. II-1/3-10, on completion of the survey, the surveyor is to verify that the update of the Ship Construction File (SCF) has been done whenever a modification of the documentation included in the SCF has taken place.

① For the SCF stored on board ship, the surveyor is to examine the information on board ship. In cases where any major event, including, but not limited to, substantial repair and conversion, or any modification to the ship structures, the surveyor is to also verify that the updated information is kept on board the ship. If the updating of the SCF onboard is not completed at the time of survey, the Surveyor records it and requires confirmation at the next periodical survey.

② For the SCF stored on shore archive, the surveyor is to examine the list of information included on shore archive. In cases where any major event, including, but not limited to, substantial repair and conversion, or any modification to the ship structures, the surveyor is to also verify that the updated information is stored on shore archive by examining the list of information included on shore archive or kept on board the ship. In addition, the surveyor is to confirm that the service contract with of the Archive Center is valid. If the updating of the SCF Supplement ashore is not completed at the time of survey, the Surveyor records it and requires confirmation at the next periodical survey.

Appendix 8 PROCEDURAL REQUIREMENTS FOR SERVICE SUPPLIERS

ANNEX 1 Special Requirements for Various Categories of Service Suppliers

15. Firms engaged in tightness testing of primary and secondary barriers of gas carriers with membrane cargo containment systems for vessels in service

15.4 Requirements for firms engaged in thermographic testing

15.4.3 Supervisor – The responsible supervisor is to be certified to a recognised national or international industrial standard (e.g. Level II, ISO-9712 as amended or SNT-TC-1A as amended) with additional certification in infrared/thermal testing. ~~Certification by the supplier is not allowed and must be obtained through an independent certification body.~~ SNT-TC-1A certified personnel must provide evidence that training on Level II or above has been administered by an independent training body centrally certified to ASNT or a comparable nationally recognized certification scheme.

15.4.4 Operators – The operators carrying out the imaging are to be certified to a recognized national or international industrial standard (e.g. Level I, ISO-9712 as amended or SNT-TC-1A as amended) with additional certification in infrared/thermal testing and to have adequate knowledge of ship structures sufficient to determine position for each identified image, and of the containment system to understand the basis of the testing. ~~Certification by the supplier is not allowed and must be obtained through an independent certification body.~~ SNT-TC-1A certified personnel must provide evidence that training on Level I or above has been administered by an independent training body centrally certified to ASNT or a comparable nationally

recognized certification scheme.

15.4.6 Evaluation of thermographic images – Must be carried out by the supervisor or individuals certified to a recognized national or international industrial standard (e.g. Level II, ISO-9712 as amended or SNT-TC-1A as amended) with additional certification in infrared/thermal testing. ~~Certification by the supplier is not allowed and must be obtained through an independent certification body.~~ SNT-TC-1A certified personnel must provide evidence that training on Level II or above has been administered by an independent training body centrally certified to ASNT or a comparable nationally recognized certification scheme.



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PART EIGHT

ADDITIONAL REQUIREMENTS

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CHAPTER 21 HULL MONITORING SYSTEMS

Section 1 GENERAL PROVISIONS

21.1.2 Class notations

21.1.2.1 Upon request of the owner and in accordance with different sensors/components of the hull monitoring system, the following class notations may be assigned:

(1) HMS: Only sensors monitoring the global longitudinal stress amidships are installed in the hull monitoring system.

(2) HMS(×): Not only sensors monitoring the global longitudinal stress amidships are installed in the hull monitoring system, but also sensors/components monitoring other parameters are selected, where within the brackets there will be letters specifying the selected sensors/components and multiple letters are separated by comma “,”².

The following sensors/components may be selected for the hull monitoring system:

Letters Specifying Selected Sensors/Components Table 21.1.2.1

Letter	Description
G _n	Sensor monitoring the global hull strain
D _n	Sensor monitoring the local hull strain
O _n	Sensor monitoring the propulsion shaft(s) output
A _n	Sensor monitoring the axial acceleration
M _n	Device for monitoring of hull rigid body motions (six degrees of freedom)
P _n	Sensor monitoring the transient sea pressure acting on the hull (slamming)
S _n	Sensor monitoring the liquid motion pressures in tanks (sloshing)
T _n	Sensor monitoring the temperature
B _n	Device for monitoring the wave
W _n	Wind sensor
N _n	Navigation sensors
C _n	Online link to loading instrument that is continuously up-dating the loading condition

Note: n denotes number of sensors or devices.

(3) HMS-HSC: applicable to high speed craft and the sensors/components installed in the hull monitoring system are to comply with Table 21.4.3.3.

² For example, a bulk carrier equipped with sensors monitoring the global longitudinal stress amidships and also sensors monitoring the axial acceleration and local hull strain may be assigned the class notation HMS (D_n,A_n) upon request of the owner.



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PART NINE

**COMMON STRUCTURAL RULES FOR BULK CARRIERS AND
OIL TANKERS**

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Part 1

Chapter 3 Structural Design Principles Section 1 Materials

2.6 Stainless steel

2.6.1

The reduction of strength of stainless steel with increasing temperature is to be taken into account in the calculation of the material factor, k and in the material Young's modulus, E .

Stainless steels are considered by the Society on a case-by-case basis.

CCS 2.6.1a For the calculation of longitudinal strength, k is to be taken not less than 0.72 for duplex stainless steels; for austenitic stainless steels, k is to be taken as:

$$k = \frac{235}{R_{eH}}$$

where:—

R_{eH} —*specified minimum yield stress of stainless steels, in N/mm^2 .*

CCS 2.6.1b For the calculation of local strength, k is to be taken not less than $235/R_{eH}$ for stainless steels in addition to complying with the following provisions:

(1) — for duplex stainless steels, k is to be taken not less than the value obtained from the following formula:

$$k = \frac{235}{-65 \ln(T) + 200 + R_{eH}}$$

(2) — for austenitic stainless steels not containing nitrogen, k is to be taken not less than the value obtained from the following formula:

$$k = \frac{235}{-40 \ln(T) + 127 + R_{eH}}$$

(3) — for austenitic stainless steels containing nitrogen, k is to be taken not less than the value obtained from the following formula:

$$k = \frac{235}{-48 \ln(T) + 142 + R_{eH}}$$

where: T —temperature of liquid cargo, in $^{\circ}C$.

CCS 2.6.1a The material Young's modulus, E , the material factor, k , and minimum yield stress, R_{eH} , are to comply with the requirements respectively, specified in [1.3.6.2] and [1.3.6.3], Section 3, Chapter 1, Part 2 of CCS Rules for Classification of Sea-Going Steel Ships.