



中国船级社
CHINA CLASSIFICATION SOCIETY
工厂认可证书

证书编号/Certificate No.
FS19PWA00044

CERTIFICATE OF WORKS APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

斗山重工业株式会社

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD.

地址/Address

22, Doosan volvo-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea

产品名称/Product

船体结构用铸钢件

Steel Castings for Hull Structures

铸钢件

Steel Casting

附加标志/Notations

无/Nil.

认可标准/Approval Standard

1. 中国船级社《材料与焊接规范》(2018)及其修改通报第1篇第6章

Chapter 6, Part One of China Classification Society Rules for Materials and Welding 2018 and its Amendments

用于/Intended for

船舶与海上设施/Ships and Offshore Installations

产品使用限定/Restriction for application of product: 无/Nil.

产品明细/Product Description

铸钢件/Steel Casting (M0001)

名称/Name	属性(值)/Value	单位/Unit
产品名称/Product Name	船体结构用铸钢件 Steel Castings for Hull Structures	
钢材种类/Steel Type	碳钢, 碳锰钢 Carbon Steel, Carbon-manganese Steel	
最大重量/Maximum Weight	300	t
冶炼方式/Melting Process	电弧炉 Electric Arc Furnace	
热处理/Heat Treatment	正火, 正火+回火, 淬火+回火 Normalized, Normalized + Tempered, Quenched + Tempered	

证书有效期至/This Certificate is valid until 2024年01月04日/ Jan. 04,2024

发证机构 中国船级社釜山分社
Issued by CCS Busan Branch

签发日期 2020年03月20日
Date Mar. 20,2020

本证书根据中国船级社规范和相关规定签发。所有证书页为一个整体, 必须同时使用。纸质证书每页均须由本社盖章方为有效, 电子证书含数字签名方为有效, 本证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。有关方对所持证书的真实性有疑问时, 可以向本社检验机构咨询。This Certificate is issued pursuant to the Rules of the Society and related regulation. All pages of the certificate are taken as a whole and are used simultaneously. No paper certificate page is valid without bearing the stamp of the Society, no electronic certificates is valid without the digital signature, and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.

Form No: W01.

联系方式/Contact Us. 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P020-38012680



1. 证书适用条件

- 1.1 经 CCS 设计认可、型式认可或工厂认可的产品及其生产厂, CCS 将颁发产品设计认可、型式认可或工厂认可证书。当 CCS 规范要求产品证书的情况下, 认可证书不能替代产品证书。
- 1.1.1 设计认可系指 CCS 通过对产品图纸审查和原型/型式试验, 确认产品设计满足 CCS 规范要求和其他接受标准要求的评价过程。
- 1.1.2 型式认可系指 CCS 通过产品图纸审查、型式试验和现场审核, 以确认制造厂具备持续生产符合 CCS 规范要求和/或其他接受标准要求产品的能力和条件的评价过程。根据制造厂产品质量保证的能力和水平, 型式认可分为型式认可 A 和 B 两种模式。
- 1.1.3 工厂认可系指 CCS 通过文件/图纸资料审查、型式试验和现场审核, 以确认制造厂具备持续生产符合 CCS 规范要求和/或其他接受标准要求产品的能力和条件的评价过程。
- 1.2 入级和法定产品经 CCS 单件/单批检验完成后, CCS 将颁发产品证书或签署等效证明文件。
- 1.2.1 产品证书是由 CCS 验船师签发的文件, 以证明: a) 产品符合规范要求; b) 产品已进行规定的检验和试验; c) 检验样品取自检验产品本身; d) 产品的试验在验船师参加或根据特别商定的情况下进行。
- 1.2.2 等效证明文件是由制造厂出具并经 CCS 盖章和验船师签署的文件, 以证明: a) 产品符合规范要求; b) 产品已进行规定的检验和试验; c) 检验样品取自检验产品本身; d) 产品的试验在验船师参加或根据特别商定的情况下进行。
- 1.3 对于要求型式认可和/或工厂认可而不要求持有产品证书的入级和法定产品, 可由制造厂证明形式予以证明:
- 1.3.1 制造厂证明是由制造厂签发, 以证明: a) 该产品经 CCS 型式认可或工厂认可; b) 产品符合规范要求; c) 产品已进行规定的检验和试验; d) 检验样品取自检验产品本身; e) 产品的试验在制造厂授权部门代表在场的情况下进行。
- 1.4 规范和法定要求以外的产品经 CCS 单件/单批检验完成后, 由检验证书或试验证书予以记录和证明。
- 1.4.1 检验证书是由 CCS 验船师签署的文件, 以证明: a) 符合申请方确定的产品标准; b) 检验和试验经验船师见证和/或试验报告经验船师审查; c) 试验样品取自检验产品本身。
- 1.4.2 试验证书是由 CCS 验船师签署的文件, 以证明: a) 产品的试验在验船师在场下进行; b) 试验样品取自检验产品本身。

2. 证书的失效、暂停和撤销

CCS 通过认可、检验工作所签发的证书或相关的证明文件的失效、暂停和撤销, 见 CCS 《钢质海船入级规范》第 1 篇第 3 章第 1 节。

3. 责任

- 3.1 CCS 承担的认可/检验服务是在所涉及的产品设计方、制造方、拥有方、销售方、供应方、修理方、使用方以及其他方履行各自职责的基础上进行的。无论 CCS 及所属验船师采用何种认可/检验方式, 也不论在 CCS 名义下颁发、签署的任何报告、文件和证书在内容上如何, 均不意味着可减轻或解除上述任何一方应承担的任何责任。
- 3.2 CCS 签发的与认可/检验有关的任何文件, 只反映检验当时的技术状况, 并不表明被认可的工厂和产品的所有权和知识产权归属。与被认可的工厂和产品的所有权和知识产权有关的任何争议, 与 CCS 无关。
- 3.3 CCS 的认可/检验不影响、替代与 CCS 授权或检验无关的各方对上述工厂的认可和发证, 并且不对与 CCS 授权或检验无关的各方负责, 不承担其未经应允而承认、接受 CCS 认可/检验所导致的法律和经济责任。
- 3.4 CCS 仅对由于自身疏忽行为而直接造成的合同关系方的损失或损害承担责任, 在任何情况下, CCS 均不对合同关系方的间接损失或随后引发的附加损失或损害承担责任, 也不对非合同关系方的任何损失承担责任。
- 3.5 尽管有上述规定, 如依法判定合同关系方所遭受的损失或损害, 仅仅是由于 CCS 或其雇员、代理人或 CCS 其他代表方的疏忽行为造成的, CCS 将承担责任, 并将支付赔偿, 但此赔偿的数额不超过该项服务收费的 5 倍, 且最大不超过人民币 200 万元。但如该损失或损害系由如下行为造成, CCS 将不承担任何责任:
- 1) CCS 雇员超越其受雇权限的行为;
 - 2) CCS 代理人或其他代表方, 超越 CCS 对其书面授权范围的行为。
- 3.6 对 CCS 承担责任的损失或损害的索赔: 应以书面形式, 在损害最初发现或损失形成的 6 个月内提出, 否则将被视为彻底放弃索赔权。

4. 适用法律和仲裁

- 4.1 本证书条款的生效、解释、执行、争议的解决均适用中华人民共和国法律。
- 4.2 除与 CCS 另有约定外, 凡因与 CCS 提供的服务有关的任何争议, 均应提交中国海事仲裁委员会, 按照申请仲裁时该会现行有效的仲裁规则进行仲裁。仲裁裁决是最终的, 对争议当事双方均有约束力。

1. THE APPLICATION OF CERTIFICATES

- 1.1 After Approval, Certificate of Design Approval, Certificate of Type Approval or Certificate of Works Approval will be issued by CCS for the products and manufacturers. Where a product certificate is required by CCS rules, the Approval Certificate cannot replace it.
- 1.1.1 **Design Approval** means the evaluation process to confirm that the product design is in compliance with the requirements of CCS Rules and/or other accepted standards through plan approval and prototype/type test.
- 1.1.2 **Type Approval** means the evaluation process to confirm the approved manufacturer's capability of continuously producing products which are in compliance with the requirements of CCS Rules and/or other accepted standards through product plan approval, type test and on-site audit. Type approval consists of two modes, type approval A and type approval B, which shall be granted to the manufacturer according to manufacturer's ability and level in product quality assurance.
- 1.1.3 **Works Approval** means the evaluation process to confirm the manufacturer's capability of continuously producing products which are in compliance with the requirements of CCS Rules and/or other accepted standards through product plan approval, type test and on-site audit.
- 1.2 A unit/batch inspection of classed or statutory products is to be documented as Certificate of Product or Equivalent document by CCS:
- 1.2.1 **Certificate of Product** is issued by the Surveyor to show that: i) the product complies with rules; ii) required inspection and test have been carried out; iii) the sample is taken from the product to be inspected; iv) the product has been tested in the presence of the Surveyor or in a specially agreed condition.
- 1.2.2 **Equivalent Document** is issued by the manufacturer and endorsed by the Surveyor to show that: i) the product complies with rules; ii) required inspection and test have been carried out; iii) the sample is taken from the product to be inspected; iv) the product has been tested in the presence of the Surveyor or in a specially agreed condition.
- 1.3 The classed and statutory products of which the type approval and/or works approval is required but the products certificate is not required, may be certified as Manufacturer's document:
- 1.3.1 **The Manufacturer's Document** is issued by the manufacturer to show that: i) the product is type approved or works approved by CCS; ii) the product complies with rules; iii) required inspection and test have been carried out; iv) the sample is taken from the product to be inspected; v) the product has been tested in the presence of the department representative authorized by the manufacturer.
- 1.4 A unit/batch inspection Products other than those specified in rules or statutory requirements is to be documented as Inspection Certificate or Test Certificate:
- 1.4.1 **Inspection Certificate** is issued by the Surveyor to show that: i) the product standards as determined by the applicant have been complied with; ii) the inspection and test have been witnessed by the Surveyor and/or the test report has been reviewed by the Surveyor; iii) the sample is taken from the product to be inspected.
- 1.4.2 **Test Certificate** issued by the Surveyor to show that: i) the product has been tested in the presence of the Surveyor; ii) the sample is taken from the product to be inspected.

2. INVALIDATION, SUSPENSION AND CANCELLATION OF CERTIFICATE

Invalidation, suspension and cancellation of the certificates or equivalent documents issued by CCS by means of approval or certification are specified in Section 1, Chapter 3, Part 1 of CCS Rules for Classification of Sea-going Steel Ships.

3. LIABILITY

- 3.1 The service of approval / inspection undertaken by CCS is carried out on the basis that the designers, manufacturers, owners, sellers, suppliers, repairers, operators and other parties fulfill their respective responsibilities. The contents of any reports, documents and certificates issued by CCS cannot diminish any liability of any party mentioned above or absolve it therefrom, whatever the module of approval/inspection adopted by CCS and its surveyors.
- 3.2 Any approval/inspection-related documents issued by CCS only reflect the status at the time when the approval/inspection is carried out. They do not constitute the description for ownership and intellectual property rights of the approved/inspected factory and product. This Society should not be affected by any dispute over ownership and intellectual property rights of the approved/inspected factory and product.
- 3.3 The approval/inspection of CCS does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. CCS does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.
- 3.4 CCS will be liable only for the loss or damage of contract parties resulting directly from its negligent act. In no event shall CCS be liable for any indirect or consequential losses or damage, and any loss of non-contract parties.
- 3.5 Notwithstanding the previous paragraph, CCS will be liable for the loss or damage due to negligent act judicially attributed exclusively to CCS and its employees, agents or other parties acting on behalf of CCS. And in no case shall the amount of this liability exceed five times the fee(s) charged by CCS in respect of the service(s) in question or 2,000,000 RMB in maximum. CCS liability for the loss or damage is specially excluded when such loss or damage arises out of an act:
- (1) by an employee of CCS acting outside the terms or scope of his/her employment; or
 - (2) by any agent or other parties acting on behalf of CCS, when such act exceeds the authority granted in writing by CCS to such agent or parties.
- 3.6 Any claim for any loss or damage set forth above is to be made in writing within six months of the date the damage first discovered or the loss occurred; failure of doing so will be deemed as an absolute waiver of this right.

4. APPLICABLE LAWS AND ARBITRATION

- 4.1 The laws of the People's Republic of China shall apply to the coming into force, explanation, implementing, and resolution of dispute of the clause of the certificate.
- 4.2 Unless otherwise agreed with CCS, any dispute of whatsoever nature in respect to the service(s) provided shall be referred to China Maritime Arbitration Commission and arbitrated in accordance with its arbitration rules effective at the time of request for arbitration. The arbitration award shall be final and binding upon both interested parties.

表面状态/Surface Machining	毛坯, 粗加工或精加工/As Cast, As Rough Machined or As Final Machined
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批准的图纸/Approved Drawings

图纸批准号/Drawings Approval No.: FS19PWA00044

产品认可试验报告/ Approval Test Report

试验报告编号/ Test Report No.: MCC10037-130KWS

试验报告日期/ Test Report Date: 2012-02-27

试验单位/ Laboratory: Doosan Heavy Industries & Construction Co., Ltd.

试验单位地址/ Test Address: 22, Doosan volvo-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea

认可后的产品检验方式/Method of Product Inspection after Approval

按规范认可后应进行产品检验的产品/The product should be inspected in term of the rules:

认可后的产品检验应由本社验船师根据本社规范规定按批准的产品检验计划进行检验, 经检验合格后由本社颁发船用产品证书。

After approval, product inspection should be carried out by the Surveyor of the Society in accordance with the approved product inspection scheme, and the Marine Product Certificate will be issued by the Society upon satisfactory inspection.

认可保持条件/Maintenance Requirements of Approval

1. 工厂认可后, 如果图纸、技术文件、工艺规程有较大改变, 应征得本社同意。若改变涉及或影响到产品的设计、主要制造材料、关键工艺或产品的特性、特征, 则与特性有关的图纸和技术文件应经过本社审批, 并在检验机构认为必要时, 经本社检验人员到厂进行检查和见证有关试验, 其结果应能证实仍符合认可条件。

After works approval, if there are any major changes to the drawings, technical documents, specifications, prior consent should be obtained from the survey office of the Society. If the changes involve or affect product design, major construction materials, key workmanship or product characteristics and properties, drawings and technical documents related to properties are to be examined and approved by the Society and, where deemed necessary by the survey office, the surveyor to the Society will go to the manufacturer to inspect or witness relevant tests and the results of the tests should be able to demonstrate compliance with the approval conditions

2. 工厂的质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 工厂认可证书获得者应接受本社每年一次的定期审核, 定期审核日为认可证书期满之日对应的每一周年日, 检查工作应在定期审核日的前后三个月内进行。Those who have obtained the certificate of works approval shall receive periodical audit done by the Society on an annual basis. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。

Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

5. 认可证书有效期内, 如果出现可能导致本社暂停或撤销认可的情况, 工厂应及时采取有效的纠正措施。

Within the validity of the approval certificate, if cases occur that may cause the Society to suspend or withdraw the certificate, the manufacturer should take corrective actions in a prompt and effective manner.

备注/Remarks

1. 船体重要结构的铸钢件(如首柱、尾柱、舵承、尾轴支架、挂舵臂、尾轴管毂等)应进行夏比冲击试验。

The castings of primary hull structures (i.e. stem, stern frame, rudder bearing, propeller shaft bracket, rudder horn, stern tube shaft, etc.) are to be subject to Charpy V-notch impact tests.

2. 尾柱件尾柱、舵和螺旋桨轴架的铸钢件, 均应进行超声波检测和磁粉检测, 并符合公认的有关标准。

Castings which are to be used in the construction of the stern frame, rudder and propeller shaft supports are to be examined by ultrasonic and magnetic particle methods, and the results are to comply with the relevant recognized standards.

3. 本证书由原工厂认可证书 (No. FS16W00004) 换新并替代原证书。

This certificate is renewed from and supersedes the previous Works Approval Certificate No. FS16W00004.



中国船级社釜山分社
CCS Busan Branch





CHINA CLASSIFICATION SOCIETY
**Letter of Issuance of Approval Certificate
of Marine Products**

Work control no. FS19PWA00044

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO.,LTD.,

In accordance with your service requirements, the China Classification Society has audited your quality system related to design, purchase, production and inspection of approved products from November, 2019 to March, 2020 in accordance with the requirements of the Society and relevant procedures, and carried out examination and type test to technical documents and drawing for STEEL CASTINGS; the audit and test results shows that your quality system meets CCS quality system requirements, it is considered that you have the capability and condition of producing the above-mentioned products, meet the relevant requirements of CCS Rules, and shall be reissued the work approval certificate, and an approval certificate (No.FS19PWA00044) and a set of document data approved/audited by the Society is hereby sent to you for your check.

After the approval, you shall comply with the following requirements; otherwise the approval certificate will be suspended or revoked:

1. After works approval, if there are any major changes to the drawings, technical documents, specifications, prior consent should be obtained from the survey office of the Society. If the changes involve or affect product design, major construction materials, key workmanship or product characteristics and properties, drawings and technical documents related to properties are to be examined and approved by the Society and, where deemed necessary by the survey office, the surveyor to the Society will go to the manufacturer to inspect or witness relevant tests and the results of the tests should be able to demonstrate compliance with the approval conditions
2. The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.
3. Those who have obtained the certificate of works approval shall receive surveillance done by the Society on an annual basis. The date of surveillance shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the surveillance may be done within a time span of three months before and after the annual surveillance date.
4. Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.
5. Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the certificate, the manufacturer should take corrective actions in a prompt and effective manner.
6. Your Company shall actively assist clients in solving any dispute over the product quality, inform CCS in time, analyze causes, put forward improvement measures and cooperate with CCS in investigation.

7. After the approval, CCS will carry out inspection of your Company's products in accordance with approved inspection plan.

8. The approval certificate is valid from March 20, 2020 to January 4, 2024. During this period, relevant requirements of CCS Rules for Classification of Sea-going Steel Ships shall be complied with.

The approval does not affect or replace any approval, inspection and certification of the manufacturer carried out by other parties irrelevant to authorization and inspection by CCS. CCS carries out approval and inspection of the product in accordance with requirements of the rules, relevant standards and quality systems. CCS shall not be responsible for any party irrelevant to authorization and inspection carried out by CCS and shall not undertake any legal and economic responsibility due to acceptance of CCS approval and inspection without prior agreement and recognition from CCS.



- Annexes: 1. Approval Certificate
2. Products Inspection Plan



CHINA CLASSIFICATION SOCIETY PRODUCT SURVEY PLAN

According to related regulations in the *Rules and Regulations for the Classification of Seagoing Steel Ships* of China Classification Society, the following marine products produced by the customer have already been approved by CCS, based on the product specification and standard and the customer's product quality system CCS shall carry out the product inspection and certification work according to the following product survey plan:

1. Customer: DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO.,LTD.
2. Approval certificate number: FS19PWA00044
3. Approved marine products: STEEL CASTINGS
4. Product inspection basis:

Chapter 6, Part One of China Classification Society Rules for Materials and Welding 2018 and its Amendments

5. Products inspection requirements:

- 5.1 Product inspection item

- 5.1.1 Test/inspection item to be witnessed by CCS:

Sample specimen selection;

Mechanical property test;

NDT test (if applicable);

Visual and Dimension examination;

Repair of major defects (if applicable).

- 5.1.2 Test items submitted for CCS audit (including those to be witnessed by CCS and reduced or exempted by ACS):

Chemical composition analysis report;

Mechanical property test report;

NDT test report (if applicable);

Visual and Dimension examination report;

Heat treatment report;

Report of major defects repair (if applicable);

- 5.1.3 Important parts to be submitted for CCS inspection (In case of outsourcing, CCS product certificate shall be provided, see the list in annex):

- 5.1.4 Quality control plan approved by CCS (if any)

- 5.2 Quality system audit item

- 5.2.1 Control record of quality system running effectiveness and important nodes;
- 5.2.2 Effectiveness of raw material and component purchase and subcontracting control;
- 5.2.3 The consistency between model, specification and source of raw materials and components and that stated in the approved document;
- 5.2.4 The purchase and subcontracting inspection record of raw material and components.
6. Product certificate form
- 6.1 Marine product certificate
- 6.2 Signing equivalent supporting document
- 6.3 Manufacturer certificate (required for the products holding the factory approval and/or type approval but not those holding the product certificate) attached with the photocopy of approval certificate
7. Inspection procedure of marine product:
- a. Request for product survey;
- b. On-site inspection;
- c. Submit relative reports above-mentioned;
- d. Review /check the report and issue the product certificate
8. Responsibilities, disagreement and arbitration
- The responsibilities, disagreement and arbitration of two parties are described in Section 13, Chapter 2, Part 1 of the *Rules and Regulations for the Classification of Seagoing Steel Ships*.
9. Other specifications
- Nil.
10. Implementation period and invalidation of product survey plant
- 10.1 The plan shall be valid from March 20, 2020 to January 4, 2024.
- 10.2 After the approval certificate of customer gets invalid, the inspection shall be invalid automatically
- 10.3 If serious defects are found in customer's product quality system that affect product quality, CCS will adjust product survey plant and notify customer in writing

China Classification Society Busan Branch



Notes: "☒" in the above form indicates "yes" or "applicable"; "☐" indicates "no" or "not applicable"

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