



中国船级社  
CHINA CLASSIFICATION SOCIETY

证书格式号/Form: T01.02-  
HQ000107

# 型式认可证书

## CERTIFICATE OF TYPE APPROVAL

证书编号/Certificate No. GB18T00020\_02

兹证明本证书所述制造厂生产的下列产品能够满足下面列明认可标准的要求。

**This is to certify** that the following products produced by the manufacturer stated in the certificate can meet the requirements of the approval standards listed below.

### 认可产品/ Product Approved

废气连续监测系统

Continuous Exhaust Gas Monitoring System

自动化监控设备

### 制造厂/ Manufacturer

Green Instruments A/S

Erhvervsparken 29, 9700 Brønderslev, Denmark

### 附加标志/ Notations

无/Nil.

### 认可标准/ Approval Standard

- 中国船级社《钢质海船入级规范》(2018)及其修改通报第3篇第1、2章,第4篇第1、2、3章  
Chapter 1&2, Part Three, Chapter 1&2&3, Part Four of China Classification Society Rules for Classification of Sea-going Steel Ships (2018) and its Amendments
- 国际海事组织决议MEPC.259(68)《2015年废气滤清系统指南》  
IMO Resolution MEPC.259(68):"2015 Guidelines for Exhaust Gas Cleaning System"
- 经国际海事组织决议MEPC.272(69)修正的MEPC.177(58)《船用柴油机氮氧化物排放控制技术规则修正案》附录3  
Appendix 3 of IMO Resolution MEPC.177(58) as amended by MEPC.272(69):"Amendments to the Technical Code on control of Emission of Nitrogen Oxides from Marine Diesel Engines"
- 《国际防止船舶造成污染公约》及其修正案附则VI  
Annex VI of The International Convention for the Prevention of Pollution from Ships(MARPOL) as amended

证书有效期至/ This Certificate is valid until

2023年8月14日 / Aug. 14, 2023

发证机构  
Issued by

中国船级社哥德堡办事处  
CCS Gothenburg Office

签发日期  
Date

2019年8月15日  
Aug. 15, 2019

本证书根据中国船级社《钢质海船入级规范》及有关程序规定签发。关于证书的有关规定见本证书背面的说明。当本证书包括多页纸张时,则所有证书页为一个整体,必须同时使用。每一页证书均须由本社盖章方为有效。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。本认可证书不代表本社对个体产品质量的检验。有关各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 for Classification of Sea-going Steel Ships and related procedures of the Society. Refer to the back of the certificate for detailed requirements of the certificate. When the certificate consists of more than one page, all pages of the certificate are taken as a whole and are used simultaneously. No certificate page is valid without bearing the stamp of the Society 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. This approval certificate does not constitute the inspection of the Society about the quality of the unit/batch product. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



中国船级社总部/CCS headquarters: 北京市东直门南大街9号船检大厦 邮编: 100007 电话/Tel: +86(10)58112288 传真/Fax: +86(10)58112811  
CCS Mansion, 9 Dongzhimen Nan Da Jie, Beijing 100007, China 网址/Web Site: <http://www.ccs.org.cn>  
本地检验机构/CCS Local Office: 中国船级社哥德堡办事处 CCS Gothenburg Office 电话/Tel: +46(31)131165 传真/Fax: +46(31)7118881

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N: 17639336

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**产品明细/ Product Description**

自动化监控设备  
产品型号/Type : G7000 Multigas Monitoring System

额定电压/Rated Voltage : 230 VAC (50/60 Hz)

外壳防护等级/Degree of Protection of Enclosure : IP55

系统组成/Components : See Additional Page

**批准的图纸和设计计算书/ Approved Drawings and Design Calculations**

图纸批准号/ Drawings Approval No. : NP18A03310

**产品认可试验报告/ Approval Test Report**

试验报告编号/Test Report No. : DANAK-19/18237  
试验报告日期/Test Report Date : 2018-08-06  
试验单位/ Laboratory : DELTA  
试验单位地址/ Test Address : Denmark

试验报告编号/Test Report No. : 7P05581  
试验报告日期/Test Report Date : 2017-08-23  
试验单位/ Laboratory : RISE Research Institutes of Sweden AB  
试验单位地址/ Test Address : Sweden

试验报告编号/Test Report No. : 8312/11  
试验报告日期/Test Report Date : 2011-02-15  
试验单位/ Laboratory : AUCOTEAM GmbH  
试验单位地址/ Test Address : Berlin Germany

试验报告编号/Test Report No. : 30652-15 HH  
试验报告日期/Test Report Date : 2015-11-27  
试验单位/ Laboratory : ABB Automation GmbH  
试验单位地址/ Test Address : Germany

试验报告编号/Test Report No. : Performance Test Report for TA TP v2.2  
试验报告日期/Test Report Date : 2017-09-06  
试验单位/ Laboratory : Green Instruments A/S  
试验单位地址/ Test Address : Denmark

试验报告编号/Test Report No. : Additional Performance Test Report Version 1.0  
试验报告日期/Test Report Date : 2017-12-11  
试验单位/ Laboratory : Green Instruments A/S  
试验单位地址/ Test Address : Denmark

试验报告编号/Test Report No. : FX108012:B  
试验报告日期/Test Report Date : 2011-07-08  
试验单位/ Laboratory : SP Technical Research Institute of Sweden  
试验单位地址/ Test Address : Sweden

试验报告编号/Test Report No. : Performance Test Report for G7000, Ver.1.0  
试验报告日期/Test Report Date : 2019-06-06  
试验单位/ Laboratory : Green Instruments A/S  
试验单位地址/ Test Address : Denmark

**产品适用范围/ Application of the Product**

船舶与海上设施/Ships and Offshore installations.

**认可保持条件/ Maintenance Requirements of Approval**

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related





drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results 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. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 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 withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

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. 如果属于获得型式认可B 模式证书, 且无需颁发船用产品证书/等效证明文件的情况, 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, 检查工作可在周年日的前后三个月内进行。

If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The periodical audit should be carried out within 3 months before and after the anniversary date which corresponds to the date of expiry of the relevant.

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

按照规范只认可不进行产品检验的产品/The product approved only in term of the rules:

认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。

After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

### 对于原材料和零部件的检验要求/ Inspection Requirements for Materials and Components

产品如下原材料和零部件应由本社认可的制造厂生产/The following materials and components of the product should be manufactured by the factory approved by the Society:无/Nil.

产品如下原材料和零部件应经本社检验/The following materials and components of the product should be inspected by the Society:无/Nil.

产品如下原材料和零部件的制造厂清单, 经本社批准方可变更/The list of manufacturer for the following materials and components of the product should not be changed without the Society's approval:无/Nil.

### 责任声明/ Statement of Responsibility

本社的认可不影响、替代与本社授权或检验无关的各方对上述工厂的认可和发证, 并且不对与本社授权或检验无关的各方负责, 不承担其未经应允而承认、接受本社认可所导致的法律和经济责任。

The approval of the Society 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. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.

### 其他/Others

本社已审核了产品厂无石棉声明, 但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

中国船级社哥德堡办事处

CCS Gothenburg Office

\*\*\*\*\*本证书正文完/ End of Text\*\*\*\*\*

注: 本证书含有附页, 共2页

Note: The certificate is attached with 2 additional page(s)

N<sup>o</sup>: 16510253 证书编号/Certificate No. GB18T00020\_02

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## Product Description and Application/Limitation

### 1.Product Description:

The Multigas Monitoring System G7000 monitors CO<sub>2</sub>, SO<sub>2</sub> and other required gases according to NOx Technical Code 2008 and MEPC.259(68). It is an extractive system where the sample gas is transported and conditioned before entering the gas analyser. The gas measurement is carried out on a dry basis and therefore no dry-to-wet conversion factors are required.

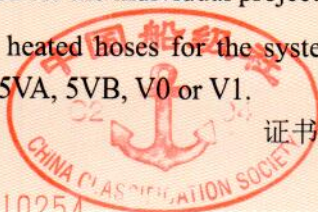
### Technical Specifications:

Multigas Monitoring System (CEMS)	<ul style="list-style-type: none"> <li>• Multigas analyzer, multiplexer, gas cooler(s), gas pump(s), condensate pump(s), air conditioner, HMI, PLC.</li> <li>• Optional: in case of gas hose lengths &gt;12m. - hose extension module.</li> <li>• External Communication: Modbus TCP/IP (terminals).</li> </ul>
Gas Analyzer	<ul style="list-style-type: none"> <li>• Type: ABB Uras 26</li> <li>• Measurement Principle: NDIR</li> <li>• Gasses: Measures CO<sub>2</sub> and SO<sub>2</sub>. Other gasses available upon request.</li> <li>• Measuring range: CO<sub>2</sub>: 0-10%; freely configurable from 0-25% SO<sub>2</sub>: 0-200 ppm; freely configurable from 0-1000ppm</li> <li>• Accuracy/Linearity: <math>\leq \pm 2\%</math> of reading, or <math>\leq \pm 0,3\%</math> of full scale whichever is larger</li> <li>• Precision/Repeatability: <math>\leq \pm 1\%</math> of full scale above 100ppm or <math>\leq \pm 2\%</math> of full scale below 100 ppm</li> <li>• Calibration: Zero Calibration: Automatic using compressed air Span Calibration: Automatic using built in optical reference filters. Possibility for verification with test gasses.</li> </ul>
Probes with heated hoses	<ul style="list-style-type: none"> <li>• Up to 5 sample probes each with heated hoses leading to the monitoring cabinet.</li> <li>• Sample flow: 0.33-1.67 l/min</li> <li>• Exhaust gas temperature 0-500°C</li> <li>• Ambient temperature: 5°C to 55°C</li> </ul>
Monitoring Cabinet	<ul style="list-style-type: none"> <li>• Enclosure: IP55</li> <li>• Power Supply: 230V AC 50/60 Hz</li> <li>• Communication: Modbus TCP/IP</li> </ul>

### 2.Application/Limitation:

1) In order to completely fulfil the requirements of MEPC.259(68) for "Continuous Emission Monitoring", the installed on board equipment (sample probes, sampling tubes, gas dryer, data recording) has to be reviewed for the individual project.

2) The heated hoses for the system should be flame retardant tested type according to IEC 60092-101 /UL94 5VA, 5VB, V0 or V1.





- 4) The Gas analyser must be operated and calibrated in accordance with the manufacturer's recommendations.
- 5) The Exhaust Gas Monitoring System must satisfy the accuracy and calibration requirement specified in the NOx Technical Code and MEPC.259(68).

-----End of Certificate-----

