DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-13456**

This is to certify that the
Gas Detectors for Exhaust Gas Emissions

with type designation(s)
G4100 NOX/O2 Analyzing System

Manufactured by
Green Instruments A/S
Brønderslev, **Denmark**

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Location classes

Temperature	**A**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**C**

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2013-11-05**

DNV local station: **Aalborg**

Approval Engineer: **Geir Bjørn Alnes**

for **Det Norske Veritas AS**

Digitally Signed By: Sneen, Ståle
Location: DNV Høvik, Norway
Signing Date: 2013-11-07, on behalf of

Odd Magne Nesvåg
Head of Section

Product description

- G41 NOX/O2 Analyzer
- G4100 NOX/O2 Gas sampling board with sampling probe

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Drawings : 01248EC dated 15-10-2012 ; 01269 dated 22-03-2011; 01392 dated 12-10-2012; 34100 dated 05-07-2012; 34100PI dated 15-10-2012
Manual G41 NOx Software v2.04 April 2012
Manual G4100 Analyzing System February 2013
EMC Test Report 2008-08-22-G1
Environmental Test Report 2008-2631 dated 2008-09-10
Performance Test Report witnessed 2009-01-19

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.
Functional testing according to Resolution MEPC.177(58) (NOX Technical Code) Section 1.6.2 to 1.10 of appendix 3.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE