DNV·GL

Certificate No:
TAA00002EV

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Emission Monitoring System

with type designation(s)
GAA610-M Series

Issued to
ABB Engineering (Shanghai) Ltd.
Shanghai, China

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Location classes:

Temperature	**A**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**A (IP 54)**

Issued at **Hamburg** on **2019-08-05**
This Certificate is valid until **2024-08-04**.
DNV GL local station: **Shanghai**

Approval Engineer: **Dariusz Lesniewski**

for **DNV GL**

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Job Id: **262.1-029860-1**
Certificate No: **TAA00002EV**

Product description

GAA610-M is Continuous Emission Monitoring System (CEMC) for marine applications.
The system consists of the following main components:
Analyzer System Cabinet:

- ABB A02000 Controller
- ABB Uras 26 Analyzer:
  - measuring principle: NDIR
  - measuring range: SO_2 0-250 ppm / 0-500 ppm
    CO_2 0-20 vol. %
- Sample Cooler (SCC-C)
- Sample Gas Feed Unit (SCC-F)
- Electrical interfaces: 4 x AO, 2 x DO, 2 x DI
- Communication interfaces: Ethernet Modbus TCP/IP

Probes/hoses:

- 2 gas sampling probes (JES-301L)
- 2 heated sample gas lines (¼" PFA)

Power supply: 230VAC 50Hz
Software: A02000 controller: Version 5.1.16
Uras 26 Analyzer: Version 3_8_2

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram
- Power supply arrangement (may be part of the System block diagram)

The Type Approval covers hardware and software listed under Product description.

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 [1.4] will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE