DNV·GL

Certificate No:
TAA000000H

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Governor Control System

with type designation(s)
2301E Load Sharing and Speed Control

Issued to
Woodward Inc.
Fort Collins CO, United States

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

Application :

Product approved by this certificate is accepted for installation on all vessels classed by DNV GL.
Location classes:

Temperature	**B**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**Required protection according to the Rules to be provided upon installation on board.**

This Certificate is valid until **2016-12-31**.

Issued at **Høvik** on **2015-06-19**

for **DNV GL**

DNV GL local station: **Houston**

Approval Engineer: **Sergey Gilmiyarov**

Odd Magne Nesvåg
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: **262.1-008003-2**
Certificate No: **TAA000000H**

Product description

2301E Load Sharing and Speed Control

Software versions:

Application Software: Installation specific, see bellow.
Control Firmware: 5414-912, Rev. B

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 A 202 will **not** be required. Correct configuration and set up for each delivery to be tested as part of switchboard functional testing and during commissioning after installation.

For classed vessels:
For installations involving parallel operation of generators in isochronous mode, commissioning tests is to include verification of response to failure at broken or short circuited load sharing lines. It shall be ensured that any such single failure does not create unacceptable conditions regardless of generator loads, as defined by Ship Rules.

Clause for application software control.
All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

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.

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END OF CERTIFICATE