

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Miscellaneous**

with type designation(s)
MDS-T

Issued to

Nabtesco Corporation
Kobe, Hyogo Pref., Japan

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :**Location classes:**

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

Temperature A

Humidity B

Vibration A

EMC A

Enclosure Required protection according to the Rules to be provided upon installation onboard

Issued at **Busan** on **2018-07-03**

This Certificate is valid until **2023-06-30**.

for **DNV GL**

DNV GL local station: **Kobe**

Approval Engineer: **Dong Ho Park**

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Michael Jost Auf der Stroth
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.



Job Id: **262.1-003994-4**
Certificate No: **TAA00001X3**

Product description

Above Type Approved system is used as speed setting governor for turbines by controlling steam valve of the propulsion turbine.

Motor Drive System:

- SMD-105 Printed Card
- AU9118 Driver
- EAR-2C Actuator
- DC/AC Inverter MA250
- DC/AC Inverter RA520

Approval conditions

The Type Approval covers hardware listed under Product description.

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)
- Test program for certification

Product certificate

Each delivery of the application system is to be certified according to Pt.4 Ch.9 Sec.1. The certification test is to be performed at the manufacturer before the system is shipped to the yard. After certification the clause for software control will be put into force.

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 DNV GL Class Guideline 0339, November 2016.

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