

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Control and Monitoring System

with type designation(s)
OceanGuard Ballast Water Management System

Issued to

Headway Technology Group (Qingdao) Co., Ltd.
Qingdao, Shandong Province, China

is found to comply with

DNV rules for classification – Ships Pt.6 Ch.5 Sec.21 Cyber security

Application :

This type approval covers security capabilities for DNV security profile 1 (SP1) and IACS UR E27 (Apr 2022), subject to conditions stated in this certificate.

Temperature
Humidity
Vibration
EMC
Enclosure

Issued at **Høvik** on **2023-09-25**

This Certificate is valid until **2025-09-24**.

DNV local unit: **Qingdao NB & CMC**

for **DNV**

Approval Engineer: **Qitao Gan**

Jarle Coll Blomhoff
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

The type approval of cyber security capabilities for Headway's **OceanGuard Ballast Water Management System** model **HMT-50(-Ex)** to **HMT-4000(-Ex)** where the following components are covered:

<i>Component Description</i>	<i>Type Designation /HW version</i>	<i>OS/Platform SW version</i>	<i>Application SW version</i>
Control Unit	Cabinet (HMT-CL)	Siemens TIA Portal Vx (where Vx is V15 or higher)	PLC 2.2.z.p revisions (where z.p is 009.03 or newer) HMI 2.1.z.p revisions (where z.p is 008.03 or newer)
Remote Control Panel	Cabinet (HMT-CR)	Siemens TIA Portal Vx (where Vx is V15 or higher)	HMI 2.1.z.p revisions (where z.p is 008.03 or newer)

Refer to another Type Approval Certificate:

TAP00001M7

where this BWMS was certified in accordance with IMO BWMS Code and DNV Rules for classification - Ships and respective class programme DNV-CP-0209.

Approval conditions

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

- Reference to this Type Approval Certificate
- Inventory list
- System block diagram (topology)
- Report from test at manufacturer.

Any modifications in the system to be delivered compared with the type approved system covered by this certificate shall be documented and submitted for approval in each case.

Major changes of the type approved system affecting future deliveries shall be informed to DNV. If the changes are considered to affect functionality for which rule requirements apply, a new functional type test may be required, and the certificate may have to be renewed to identify the new version. Minor changes are covered by this type approval.

Application/Limitation

The verified security capabilities may be implemented in the product which provides services to Headway's customers. Customer data/application is not necessarily subject to the same security functions.

All hardware devices and accessible interfaces in the system shall be installed in areas with means to prevent unauthorised access and/or with physical access restrictions.

The approval is valid when the internal network interface is connected to a trusted security zone.

Protection of malicious code in USB log transfer is controlled by setup of a blacklist that is maintained in daily use.

Type Approval documentation

Tests carried out

All hardware and software versions were tested in July 17th ~ 19th 2023 at Headway site in Qingdao, China, in accordance with requirements for DNV security profile 1 (SP1) for

- Cyber Secure (Essential), ref. DNV-RU-SHIP Pt.6 Ch.5 Sec.21 (2023-07 Edition)
- Cyber resilience of on-board systems and equipment, ref. IACS UR E27 (Apr 2022)

Marking of product

The type designation and the manufacturer name and contact address shall be affixed visibly, legibly and indelibly to the product. In addition, the product shall be marked with:

- model name
- serial number
- power supply rating

Place of manufacture

Headway Technology Group (Qingdao) Co., Ltd., Qingdao, Shandong Province, China

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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE