Certificate no.:
TAA00003FH

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Control and Monitoring System

with type designation(s)
PureBallast 3.2

issued to
Alfa Laval Technologies AB
Tumba, Stockholms Län, Sweden

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 in accordance with DNV security profile 1 and IACS UR E27, subject to conditions stated in this certificate.

Issued at **Høvik** on **2024-12-18**
This Certificate is valid until **2026-12-17**.
DNV local unit: **Sweden CMC**

for **DNV**

Approval Engineer: **Knut Omberg**

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

This type approval applies for the below Alfa Laval ballast water management systems. Hardware and software components are specified in the document PureBallast 3.2 Cyber Security Asset Inventory. The application software versions at the time of type approval are listed below:

System name	System description	Application software
PureBallast 3.2	Standard configuration	V3.2.3.18
PureBallast 3.2 Ex	Explosion proof configuration	V3.2.3.18
PureBallast 3.2 Compact	Simplified skid-mounted configuration	V3.2.1.13 Compact
PureBallast 3.2 Compact Flex	Simplified loose components configuration	V3.2.1.13 CFlex

Changes to the type approved system are managed by Alfa Laval in accordance with document Update Process. Major changes shall be documented and submitted to DNV for verification of compliance with applicable requirements, witness new type test, and revise this TA certificate. Minor changes are covered by this type approval.

A log of all changes shall be submitted upon renewal of this TA certificate.

Approval conditions

This TA certificate covers cyber security capabilities and system architecture in accordance with security profile 1 (SP1) as per DNV-RU-SHIP Pt.6 Ch.5 Sec.21. SP1 is based on IEC 62443 security level 1, and aligned with IACS UR E26 and E27.

The following conditions apply for deliveries to vessels with DNV class notation Cyber Secure(Essential) contracted after July 1st. 2024.

The control systems covered by this certificate are not considered part of the mandatory scope of applicability for cybersecurity in IACS UR E26 chapter 1.3.2, specified as “Default SuC” in DNV rules Pt.6 Ch.5 Sec.21. Consequently, the system integrator is not required to allocate these control systems to security zones on board.

If the control system is not allocated to a security zone on board, it shall be considered “untrusted”. In such case, product certification is not required.

If the control system is allocated to a security zone, it shall be delivered with product certificate in accordance with DNV-RU-SHIP Pt.6 Ch.5 Sec.21. This certification shall be based on approval of the documents listed below.

- Asset inventory (F071), demonstrating consistency with type approved asset inventory.
- System topology (F030), demonstrating system architecture and interfaces with other systems and equipment as per type approved topology.
- Test report or declaration (F262) demonstrating configuration of security capabilities as per type approved configuration document (F141).
- Relevant description of any differences in the delivered system compared with the type approved system.

Application/Limitation

The control system shall be installed in areas with means to prevent unauthorized access.

The control system may be arranged with a point-to-point Ethernet connection to the Alfa Laval Field Gateway (TAA000032S).

Tests carried out

Tested according to DNV Pt.6 Ch.5 Sec.21 SP1.

Marking of product

Hardware components are identified by name, model and version as per Asset inventory document. The application software program version is identified in the Main HMI display.

Places of manufacture

Alfa Laval Qingdao Ltd., No. 9, The West of Minjiang Road, Jiaozhou Economic and Development Zone, Qingdao, 266300 Shandong, P.R. China

Alfa Laval Aalborg A/S, Gasværksvej 21 9000 Aalborg, Denmark

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
- Review documented evidence of adherence to Secure Development Lifecycle processes

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

END OF CERTIFICATE