Certificate No:
TAA000032H

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electrical Control System

with type designation(s)
E3000mini, E3000-L-400/C-500

Issued to
KAEFER Schiffsausbau GmbH
Bremen, **Germany**

is found to comply with
DNV rules for classification – Ships

Application :

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

Temperature	**A**
Humidity	**B**
Vibration	**A**
EMC	**A**
Enclosure	**Required protection according to DNV GL Rules shall be provided upon installation on board**

Issued at **Hamburg** on **2021-11-17**
This Certificate is valid until **2026-11-16**.
DNV local station: **Hamburg – CMC North/East**

Approval Engineer: **Didier Girardin**

for **DNV**

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.

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
E3000mini and E3000-L-400 / E3000-C-500 FSD electrical control system connecting an electronic controlled DC-Motor with integrated three step planetary gear to move a sliding door against heeling until 3.5°.

230VAC 50/60Hz uninterruptable power supply with backup battery inside the control box provided with capacity to open and close the door for at least 10 complete cycles in upright position.

Approval conditions
The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Customer Installation, user, and maintenance manual to be provided for each installation.

Application/Limitation
None

Type Approval documentation
Hidden

Tests carried out
Applicable tests according to class guideline DNV-CG-0339, August 2021

Marking of product
The products to be marked with:
- Model name
- Manufacturer name
- Serial number

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