Certificate No:
TAA0000358

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Loading Computer System

with type designation(s)
NAPA Stability, Version STB-A

Issued to
Napa Ltd.
Helsinki, **Finland**

is found to comply with
DNV rules for classification – Ships and offshore units

Application :

Type approved for calculation and control of loading conditions with respect to requirements for:

- Shear force and bending moments against limit curves.
- Intact stability by direct calculation.
- Intact and damage stability against limit curve.
- Damage stability in real case or simulated flooding scenario.

The product approved by this certificate is accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-04-22**
This Certificate is valid until **2024-04-21**.
DNV local station: **Finland CMC**

Approval Engineer: **Nini Ulland**

for **DNV**

Inge Seglem
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

Available Options of the Software:

Based on the stored characteristic data and stored 3D model and loading data given by the user, the following functions are performed onboard monohull vessels:

Hull Strength

For prepared loading conditions:
1. Calculation of still water bending moment and shear force, and control against limit values.

Stability

For prepared loading conditions:

1. Calculation of draft, trim, righting levers (GZ) and metacentric height (GM).
2. Calculation and check of the intact stability criteria of 2008 IS Code Part A Ch.2.2 and 2.3.
3. Calculation and check of compliance with pre-stored limit curves for intact and damage stability.
4. Calculation of damage stability of a real case flooding scenario, with manual user input of the damage case, according to DNV Rules Pt.6 Ch.4 Sec.6, “Type 4” computer for passenger ships, also covering Safe return to port.
5. Calculation of damage stability of a real case flooding scenario, with level sensor generated damage case according to DNV Rules Pt.6 Ch.4 Sec.6, class notation LCS(DC).

Approval conditions

1. The loading computer is considered as supplementary to the approved stability booklet and/or loading manual onboard.
2. Specific approval and certification is required for each vessel at which the program is installed. Documentation to be submitted for approval is listed in DNV Rules for Ships Pt.6 Ch.4 Sec.6. The identification of software will be recorded in the certificate.
3. The program is either to be installed on one approved hardware (type approved or case-by-case approved), or it is to be installed on two nominated computers.
    i. For compliance with SOLAS Safe Return to Port the program is to be installed on two independent computers. The hardware shall have uninterrupted power supply (UPS).
    ii. For compliance with class notation LCS(DC) the program is to be installed on approved hardware.

Type Approval documentation

The documentation is based on the following selected test ship:

- DNV Id 39066, “National Geographic Endurance”.

The approval is based on the following documentation:

- Test conditions
- Basic data
- User’s manual

Limitation

The type approval is valid only for the calculation results. I.e. the type approval is a confirmation that the software is able to give correct results provided that the stored characteristic data of the vessel and the user's input is correct.

Renewal assessment

The scope of the retention/renewal assessment is to verify that the conditions stipulated for the type approval is complied with and that no alterations are made to the product or software design.

The main elements of the assessment to be dealt with:

- Ensure that documentation for the type approval is available.
- Ensure that the type approved software complies with the referenced documents and specifications.

- Review of possible changes in design and performance of the type approved software version.
- Ensure traceability between manufacturer's product marking and the DNV Type Approval Certificate.

The assessment is to be performed only upon renewal, and by the unit issuing the type approval certificate.