DNV·GL

Certificate No:
TAA00001TA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Loading Computer System

with type designation(s)
Autoload Version 6.0

Issued to
Autoship Systems Corporation
VANCOUVER BC, Canada

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

Application :

Type approved for calculation and control of loading conditions with respect to requirements for
- Check of shear force and bending moments against limit curves
- Check of intact stability, damage stability and grain stability by direct calculation
- Check of intact and damage stability against limit curve

The product approved by this certificate is accepted for installation on all vessels classed by DNV GL, but is subject to approval and testing for each individual vessel.

Issued at **Høvik** on **2018-04-10**
This Certificate is valid until **2020-06-30**.
DNV GL local station: **Oslo Maritime and CAP**

Approval Engineer: **Nils Heimvik**

for **DNV GL**

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.

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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 the intact stability alternative criteria to Ch. A 2.2.3, set out in IMO MSC.1/Circ.1281 Chapter 4
4. Calculation and check according to the damage stability criteria of MARPOL 73/78 Annex I Regulation 28, IMO IBC Code Ch.2, and IMO IGC Code Ch.2
5. Calculation and check according to the damage stability criteria of IMO Res. MSC.235(82) as amended by MSC.335(90), Ch. 3
6. Calculation of crane heeling moment in all directions according to graphical 3D user interphase, and check of crane stability for transverse crane lift according to DNV GL rules for classification - Ships Pt. 5 Ch. 10 Sec. 2.4.3
7. Calculation and presentation of permissible anchor tension curve applied for anchor handling, according to IMO 2008 IS Code (as amended in 2016), Pt B Ch. 2.7 (Res. MSC.415(97) Ch.2.7)
8. Calculation and check of the intact stability criteria for towing given in IMO 2008 IS Code (as amended in 2016), Pt B Ch. 2.8 (Res. MSC.415(97) Ch.2.8)

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 GL Rules for Ships Pt.6 Ch.4 Sec. 7. 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. If two nominated computers are available, approval of hardware may be waived (Ref. DNV GL Rules Pt.6 Ch.4 Sec.7).

Type Approval documentation

The type approval is based on the following test ships and doumentation:

Previous version 5.0.1:
- DNV Test Vessel No.1

Autoload version 6.0
- "Far Symphony" ID24797
- "Far Splendor" ID24772
- "Skandi Emerald" ID28764 (Direct damage calculation)
- "Deosund" ID22878 (SPS Code, Res.A.534(13) Ch.2)
- "Seven Borealis" ID28191 (Crane calculation)

- Stored Characteristic Data
- Test loading Conditions
- Program description

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 GL Type Approval Certificate.

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