

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Loading Computer System

with type designation(s)
LOADSTAR VER.1

Issued to

IBM Danmark A/S
Kgs. Lyngby, Denmark

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;

Control of shear force and bending moments against limit curves * Correction of shear force for Tanker and Bulker * Intact Stability

This Certificate is valid until **2017-06-30**.

Issued at **Høvik** on **2015-11-23**

DNV GL local station: **Copenhagen**

Approval Engineer: **Aniko Horvath**

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.

Product description

Available Options of Software:

Based on the stored characteristic data, and loading data given by the user, the following functions are performed on board monohull vessels:

Hull Strength

1. Calculation of stillwater shear force and bending moments, and control against limit values.

Stability:

1. Calculation of draft, trim and metacentric height (GM).
2. Calculation and control of loading conditions with respect to intact stability criteria of IMO Res.A749(18) ch.3.1 and Ch.3.2 or 2008 IS Code Part A Ch.2.2 and 2.3.

Approval conditions:

1. The loading computer is considered as supplementary to the approved loading manual, stability booklet and grain loading booklet onboard with respect to longitudinal strength.
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.9. The identification of hardware 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, but both the two nominated computers are subject to certification. In case of not approved hardware, there will then be two nominated computers available in case of failure of one.

Type Approval documentation

Id.25800, Daewoo Shipbuilding & Marine Eng. Co., D4437, Strength and Stability
Id.14882 Ørskov Christensen Y145 , Strength and Stability



Job Id: **262.1-020926-1**
Certificate No: **TAA0000077**

Limitation

Periodical assessment

The scope of the retention/renewal survey 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 survey 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.

END OF CERTIFICATE