



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-10133
This Certificate consists of 3 pages

This is to certify that the
Loading Computer System
with type designation(s)
SHILOAD Ver.5.xx

Manufactured by
Lodic AS
TRONDHEIM, Norway

is found to comply with
Det Norske Veritas' Rules for Classification of Ships and Det Norske Veritas' Offshore Standards

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* Intact, Damage and Grain Stability

Place and date
Høvik, 2006-10-03
for DET NORSKE VERITAS AS

This Certificate is valid until
2009-06-30

Anne V. Hartmann
Head of Section

Local Office
DNV Trondheim

Aniko Horvath
Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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Product description

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:

1. Calculation of longitudinal bending moment and shear force, and control against limit values.

Stability:

1. Calculation of draft, trim and metacentric height (GM)
2. Check of compliance with intact stability criteria according to:
 - DNV ✕ 1A1 (IMO Res. A.749(18), Ch.3.1) -IMO Res. A.749(18), Ch.3.2 ("Weather criterion").
3. Check of compliance with grain stability requirements according to SOLAS 74/78, Ch.VI, Part C and MCS 23(59) including part A.10.3, for trimmed and untrimmed ends of grain holds.
4. Calculation and control of loading conditions with respect to Damage Stability criteria according to MARPOL 73/78, Regulation 25 and 13F, IMO IBC Code Ch.2 and IMO IGC Code Ch.2.

Application/Limitation

1. The loading computer is considered as supplementary to the approved stability booklet and 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.9. The identification of software and hardware will be recorded in the certificate.
3. The approved software is either to be installed on a type approved hardware, 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 verification. In case of not approved hardware, there will then be two nominated computers available in case of failure of one.



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Type Approval documentation

DNV Id.No. 23031	“Scandi Carla”	Strength-Intact Stability
DNV Id. No. 21037	“Scandi Patagonia”	Strength- Intact Stability
DNV Id. No. 20606	“Ataulfo Alves”	Strength-Intact and Damage Stability
DNV Id. No. 25197	“NS Silver”	Strength-Intact and Damage Stability

For GRAIN Stability

DNV Id. No. 14110	“Trollnes”	approved 2006-07-07
DNV Id. No. 14178	“Tornes”	approved 2006-05-17
DNV Id. No. 12754	“Telnes”	approved 2006-05-30
DNV Id. No. 12755	“Tinnes”	approved 2006-05-30

The approval is based on the following documentations

Stored Characteristic Data
Test loading Conditions
Program description
User manual

Certificate retention survey

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.
- Ensure traceability between manufacturer’s product marking and the DNV Type Approval Certificate.

Survey to be performed only by renewal.

END OF CERTIFICATE