



TYPE APPROVAL CERTIFICATE
No. ELE111120PU

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

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|----------------------------|--|
| <i>Description</i> | SOFTWARE FOR LOADING INSTRUMENT |
| <i>Type</i> | CYBERMASTER 3D |
| | VERSION 10.1 |
| <i>Applicant</i> | CYBERMARINE TECHNOLOGIES PTE LTD |
| | 10 Bukit Batok Crescent, #12-01 The Spire Building |
| | 658079 Singapore |
| | SINGAPORE |
| <i>Reference standards</i> | Rules for the classification of ships - Part C - Machinery, Systems and Fire Protection - Chapter 3, Section 6, Paragraph 2.3 |

Issued in **BUSAN** on **December 21, 2020**. This Certificate is valid until **December 20, 2025**




RINA Services S.p.A.
Young-Kwang Kim

This certificate consists of this page and 1 enclosure



**SOFTWARE FOR LOADING INSTRUMENT
(CYBERMASTER 3D)****1. Application**

- Type approved for calculation and control of loading conditions with the following functions:
 - 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 RINA. Note that ship specific approval and certification is also required.

2. Product Description

- Available options of the software
- Based on the stored characteristic data and stored 2D(*) and 3D model and loading data given by the user, the following functions are performed onboard mono hull vessel:

(*) A table input based "2D" version is also available for vessels for which 3D model data (lines) are not available. This version cannot be used for direct damage stability calculations.

2-1. Hull Strength:

For prepared loading conditions;

- Calculation of still water bending moment and shear force, and control against limit values.

2-2. Stability:

For prepared loading conditions;

- Calculation of draft, trim, righting levers(GZ) and metacentric height(GM)
- Calculation and check of the intact stability criteria of 2008 IS Code Part A Ch.2.2 and 2.3
- Calculation and check of compliance with pre-stored limit curves for intact and damage stability
- 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
- Calculation and check of the grain stability requirements of SOLAS-74 Reg. VI/Part C and MSC 23(59), (International Grain Code) including A.10.3
- Calculation of damage stability of a real case flooding scenario, with manual user input of the damage case, according to RINA Rules Pt.B Ch.11 Sec.2 [4.5.4]



RINA Società per azioni
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3. Approval Conditions

- 3-1. The loading computer is considered as supplementary to the approved stability booklet and/or loading manual onboard.
- 3-2. Specific approval and certification are required for each vessel as which the program is installed. Documentation to be submitted for approval is listed in RINA Rules Pt.B Ch.11 Sec.2 [4.3.3]. The identification of software will be recorded in the certificate.
- 3-3. 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. RINA Rules Pt.B Ch.11 Sec.2 [4.3.4]).

4. Approval Conditions

- The type approval is based on the approval of the software options for the following vessel:

4-1. Strength only

- | | | |
|--|---|--------------------------------------|
| - Ship name | : | JAG PRAJA |
| - Operation manual & Test loading conditions | : | RINA APP. No. PUCD-10798 |
| - Approval letter | : | PUCD/2020/00537/JKI dated 10/12/2020 |
| - Ship name | : | JAG PRAYOG |
| - Operation manual & Test loading conditions | : | RINA APP. No. PUCD-10799 |
| - Approval letter | : | PUCD/2020/00538/JKI dated 10/12/2020 |
| - Ship name | : | KANPUR |
| - Operation manual & Test loading conditions | : | RINA APP. No. PUCD-10800 |
| - Approval letter | : | PUCD/2020/00539/JKI dated 10/12/2020 |

4-2. Strength and Intact Stability

- | | | |
|---------------------------|---|--------------------------------------|
| - Ship name | : | MV GLORY SKY |
| - Operation manual | : | RINA APP. No. PUCD-10643 |
| - Test loading conditions | : | RINA APP. No. PUCD-10649 |
| - Database | : | RINA APP. No. PUCD-10653 |
| - Approval letter | : | PUCD/2020/00432/JKI dated 29/10/2020 |

4-3. Strength, Intact stability and Grain Stability

- | | | |
|---------------------------|---|--------------------------------------|
| - Ship name | : | MIRANDA ROSE |
| - Operation manual | : | RINA APP. No. PUCD-10801 |
| - Test loading conditions | : | RINA APP. No. PUCD-10802 |
| - Approval letter | : | PUCD/2020/00541/JKI dated 10/12/2020 |



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4-4. Strength-Intact and Damage stability (3D model)

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|---------------------------|---|--------------------------------------|
| - Ship name | : | AFREICAN SPRINTER |
| - Operation manual | : | RINA APP. No. PUCD-10642 |
| - Test loading conditions | : | RINA APP. No. PUCD-10646 |
| - Database | : | RINA APP. No. PUCD-10650 |
| - Approval letter | : | PUCD/2020/00428/JKI dated 28/10/2020 |
| | | |
| - Ship name | : | CASPIA |
| - Operation manual | : | RINA APP. No. PUCD-10644 |
| - Test loading conditions | : | RINA APP. No. PUCD-10647 |
| - Database | : | RINA APP. No. PUCD-10651 |
| - Approval letter | : | PUCD/2020/00429/JKI dated 28/10/2020 |
| | | |
| - Ship name | : | DELICE |
| - Operation manual | : | RINA APP. No. PUCD-10645 |
| - Test loading conditions | : | RINA APP. No. PUCD-10648 |
| - Database | : | RINA APP. No. PUCD-10652 |
| - Approval letter | : | PUCD/2020/00429/JKI dated 28/10/2020 |

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



BUSAN December 21, 2020



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