CyberMaster™

Ship board Stability and Longitudinal strength Indicating Software

Developed By -

Cybermarine

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CyberMaster™

Introduction

Cybermaster™ is an onboard ship load and stability indicating software which works on Windows Operating System. Approvals from all leading classification societies make Cybermaster™ a standard application with familiar user end graphics and ensure high level of accuracy in all outputs.

This software is interface ready with various sensing devices and can be delivered as a package along with tank level gauging and Valve Remote control systems using various communication protocols.

Cybermaster™ with different modules can be customised for FPSO, General Cargo Vessel, Bulk Carriers, Oil/Chemical Tankers, Gas Carriers, Container Vessels, Passenger Vessels, Semi-Submersibles, Jackup Rigs, Anchor handling Tugs & Supply Vessels.

Over 550 vessels are using Cybermaster™ worldwide and is supported by a strong technical team of engineers for development and client support.

Salient Features

- User-friendly graphical user interfaces and familiar menu layout.
- Accurate calculations using actual Hydrostatics & KN Curves at various heel angle.
- Online sounding mode compatible with various major instruments.
- Various report presentation showing Intact Stability & Strength reports, and also report to view database like Hydrostatics & KN, Sounding tables, SF/BM Allowables etc.
- Graphical presentations of Tank Plan.
- Inbuilt contextual User-friendly Help Manual & Tips for better & efficient learning and Online Help & support.
- Capability to view multiple loading conditions at same time.
- Type approved by various classification societies like- LRS, DNV-GL and has Specific approvals from NKK, BV, ABS, RINA & others.

Main Functions

PREPARATION OF LOADING CONDITIONS:

- Can create & store new Loading conditions.
- Retrieve and Edit stored Loading conditions.
- Tank / Hold filling by Weight, Volume, Percentage and Sounding / Ullage depth.
- Provision for correction in sounding due to Trim and Heel
- User defined parameters for:
  » VCG Maximum or VCG from sounding table.
  » FSM Maximum or From sounding tables or user defined.
- Units choice – British units/SI units, API units.

COMPUTATION OF DRAFTS & INTACT STABILITY:

- Draft, Trim, Heel, GoMt, FSM & KG computations.
- Displacement & Dead weight calculations.
- IMO Intact Stability as per IMO A-749 and compliance comparison.
- Wind Heeling Moment calculations as per IMO A-562.
- Rolling Period calculations as per IMO A-749.

COMPUTATIONS OF LONGITUDINAL STRENGTH:

- SF/BM calculation at the prescribed frame.
- Comparison with the allowable values.
- Shear Force correction at bulkheads.
- Graphical display of the calculation results.
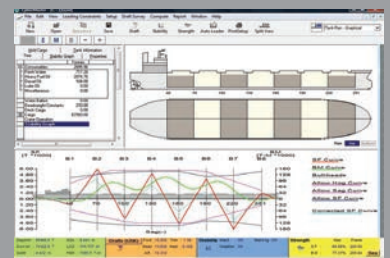
## WARNINGS, CHECKS & ERROR PREVENTION FOR EXCEEDING THE FOLLOWINGS:

- Load line Draft and Excessive Trim.
- Maximum permissible VCG exceeding.
- Any of the Stability criteria violation.
- Propeller Immersion and Minimum Forward Draft.
- Permissible Still water Bending moment and Shear force.
- Net Tank Top strength.
- Audio alarms for criteria violations.
- User-defined constraints of Draft, Trim checks.
- Special Constraints such as Minimum Ballast Draft, Propeller Immersion.

SPECIAL AND OPTIONAL FEATURES:

- Ballast Exchange.
- Loading/ Discharging Sequencer.
- Autoloader.
- URS 17 module (for checking flooded strength and Block Loading Curves)

- Draft Survey to find unknown Weights and to adjust Deadweights.
- Ability to check for multiple (various) Loadline.
- Network version of the software.

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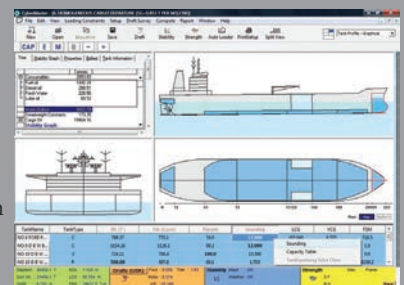
Vessel Specific Versions

1. BULK CARRIERS:

▶ Adjacent / Block loading / permissible tank to strength warning.

▶ SF correction at bulkheads.

▶ Permissible tank top / Net tank top strength warning loading.

▶ Grain Stability calculations according to grain code.

▶ Flooded Strength Calculation.

▶ All URS requirements for a new bulk carrier.
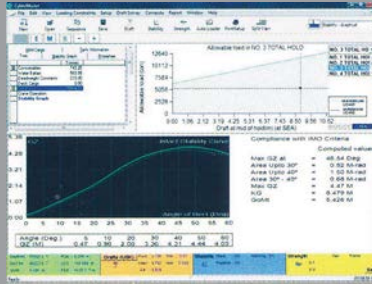
2. OIL / CHEMICAL TANKERS:

▶ Use of ASTM Petro measure tables i.e. table 54A/54B/6A/6B.

▶ User defined VCF for chemicals.

▶ Cargo Compatibility warnings.

▶ Input as density as well as API.

▶ ISO Wedge correction computation.

▶ Provision of standard and customized format for Ullage report generation for tankers and chemical cargo carrier.

▶ Capability to make Heel and Trim correction to Ullage entry.

▶ Online interface to Ullage and temperature inputs.
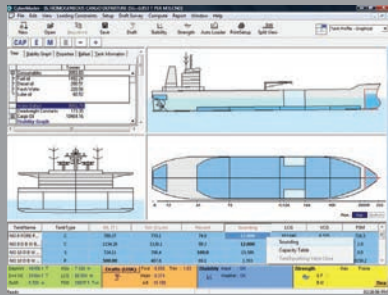
3. GAS CARRIERS:

▶ Gas cargo summary and Gas cargo report.

▶ Cargo Quantity Calculations and various corrections to cargo volume.
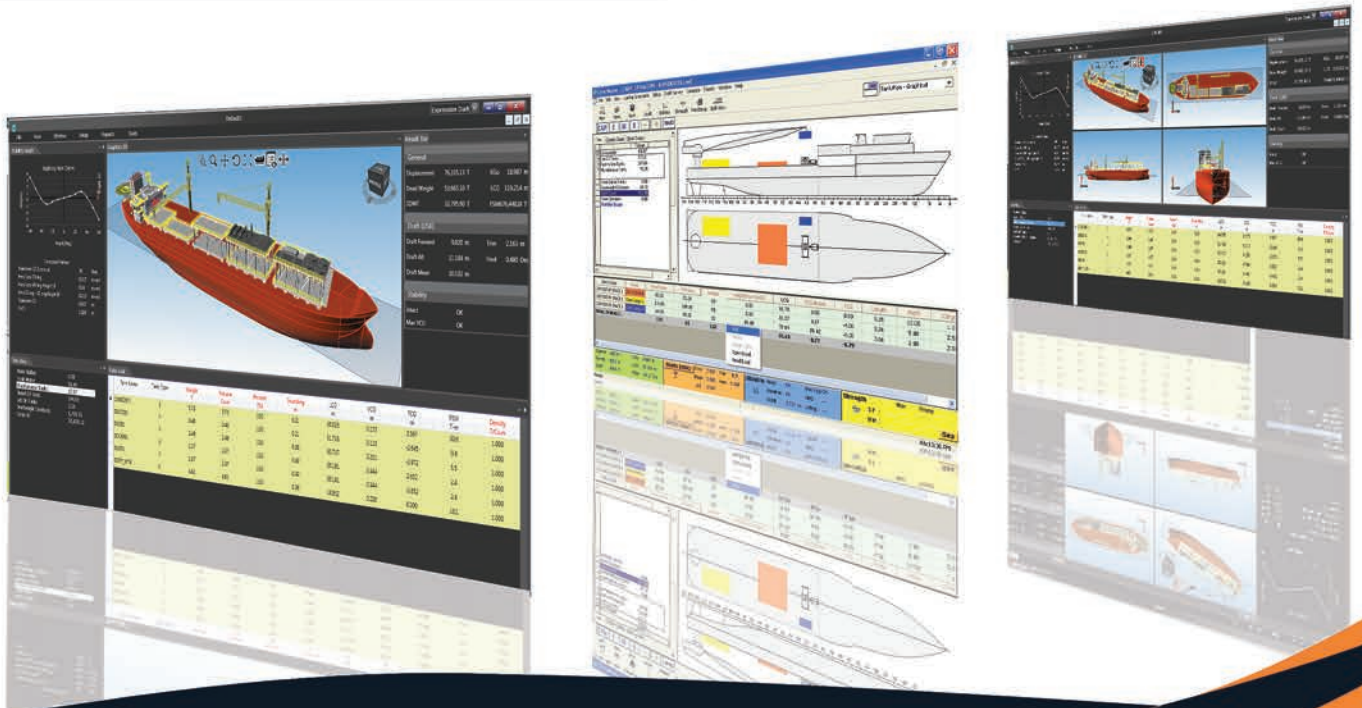
▶ Vast Database of properties for various gases.

4. CONTAINER VESSELS:

▶ Cargo handling functions for Loading Port / Discharging Port, Shifting of container Control, Segregation Check, Container Sorting, Container Status.

▶ Graphical View for stowage Plan, Bay section, Plan/ profile.

▶ Deck Strength and Stack Weight warning for containers.

▶ Preparation of bay plans with user defined parameter.

▶ Assigning Container properties.

▶ Read / Write from Baplie file and container details from excel file.

▶ Torsion Calculations.

▶ Container loading as per latest IMDG Code.

5. ANCHOR HANDLING SUPPLY VESSEL:

▶ FI Fi Criteria

▶ Tow Rope Criteria

▶ Drag and Drop of deck cargo.

▶ Multi Deck load display options.

▶ Deck Cargo identification by mouse pointing.

▶ Visual alarm for loading constraint violation

▶ Deck Cargo location interference check.

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Additional Modules

Cybermaster™ has an additional module catering to the damage stability calculations of all types of vessel.

DAMAGE STABILITY:

- A graphical view of Equilibrium Damaged Condition of vessel.
- Each compartment is modeled accurately using Lines Plan / Structural drawings to generated Hydrostatics & KN curves and use the same for computations at various trims.
- Damage Stability Report showing status of the vessel before & after damage.
- Flexibility to choose various combinations of compartments, along with pre-loaded Damage cases..
- All the required significant criteria like – MARPOL, IGC, SOLAS, IBC incorporated.
- Flexibility to change the default PERMEABILITY of the compartments.
- Outflow calculation with Grounding.

DOCUMENTS REQUIRED FOR CUSTOMIZATION OF CYBERMASTER™:

- Approved Intact Stability Booklet.
- Approved Loading Manual (reqd. for Strength Approval).
- General Arrangement, Capacity Plan & Table and Docking Plan.
- Lines Plan / Offset table, Structural Drawings.
- Hydrostatics & KN Curves.
- Soundings / Ullage tables with heel & trim corrections.
- Lightship Distribution & Sectional Area / Bonjean Curves and SF/BM Allowables.
- Damage Stability Booklet.

Jack-Up RIGS & Semi Submersible:

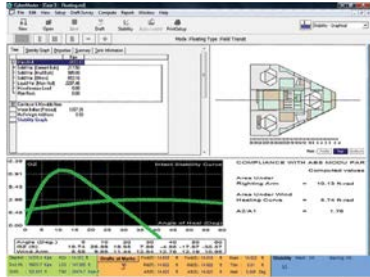### 6. MODEWISE FEATURES OF CYBERMASTER™ FOR RIGS:

Jack up Mode:

- Load Calculation for Operational Mode & Survival Mode - Leg Load, Chord Load & Spudcan Uplift Load due to wave / current for various water depths.
- Warning when the parameters exceeds.
- Load variations due to Cantilever positions.

Pre load Mode:

- Preload assessment, schedule and plan.
- Load Calculations.

Floating Mode:

- Calculation of loads and moments due to various solids and liquid bulks.
- Calculation / interpolation of Hydrostatic curves, righting. moments, Healing Moments, Allowable KG, Metacentric Heights etc. Floatation stability with variable position of leg available with / without Spudcans empty.

7. SEMI SUBMERSIBLE:

- Anchor Chain Tension and Payout Correction.
- Choice of Azimuth directions for stability calculations.
- Graphical and Interactive Deck Loading interface with Grid.
- Allowable Residual Deck Load check agianst Permissible deck load.

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