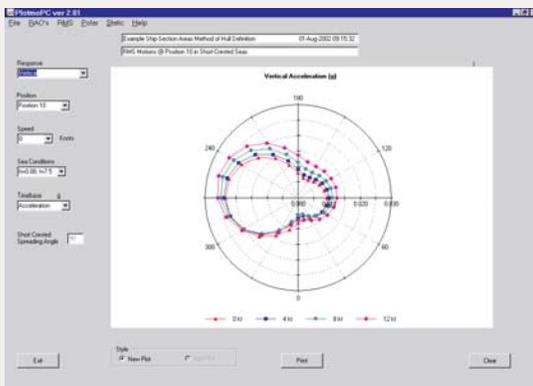
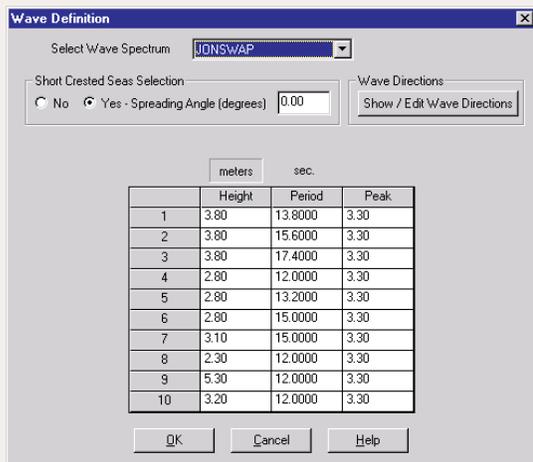


Seakeeping Predictions Software

ShipmoPC is a widely used and extensively validated seakeeping software package that provides comprehensive ship motion and load predictions and analysis.

ShipmoPC v.3.0.x



Comprehensive Analysis

ShipmoPC can be used for monohull ships of all sizes in regular or irregular seas. Analysis capabilities include:

- prediction of ship motions in regular and irregular seaways with six degrees of freedom
- equipped with algorithms to predict deck wetness, slamming occurrence and slamming pressures
- extensive wave spectra selection
- human tolerance factors - MII, tipping and sliding
- predictions of motion and acceleration at user-specified locations
- still water and wave induced hull girder moment shear torsional load assessment

Customizable and User Friendly

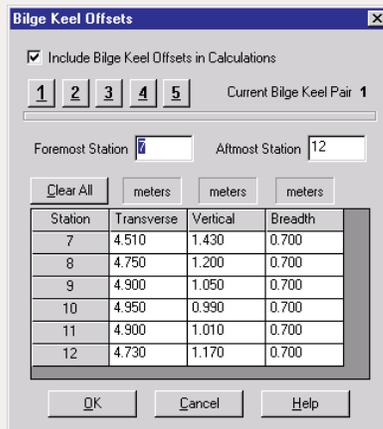
ShipmoPC offers a user-friendly interface with enhanced plotting capability and report quality output. Users can specify vessel features and environmental factors in order to predict monohull ship motions.

ShipmoPC allows user-defined input on waves, mass/weight distribution, stabilizing systems, ship features, sea directions, seakeeping information and more.

The program can also be customized by the BMT Fleet Technology development team in consultation with end users to provide additional functionality

Research Supported by Proven Expertise

ShipmoPC software is based upon extensive research and validation against a wide variety of ships ranging from offshore supply vessels to container ships, FPSO's and naval ships. BMT staff are continuously adding sea trials data to test ShipmoPC predictions and add new capabilities.



Extensive Reporting Capabilities

ShipmoPC provides a comprehensive choice of reporting capabilities with both graphical and tabular presentation of results. It can generate speed-referenced polar plots of any of the motion response parameters. The program also produces formatted text output and X-Y plots of results.

The software is compatible with a variety of other Windows™ based applications for post processing analysis. A comprehensive user manual and on-line help are included.

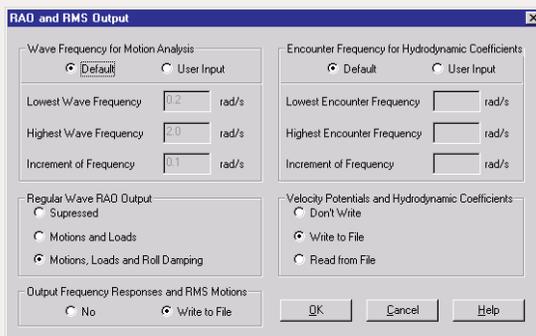
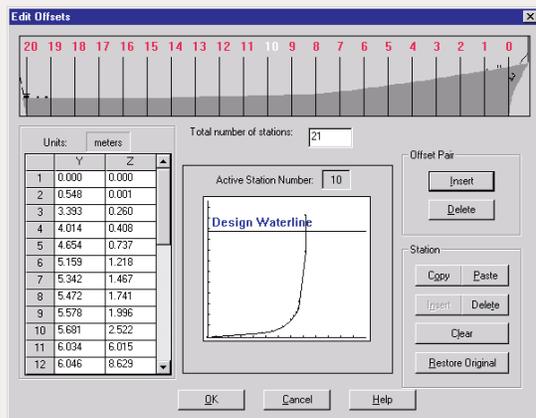
Technical Support and Consulting

BMT Fleet Technology Ltd provides technical support for ShipmoPC, and also offers extensive marine consulting services for seakeeping performance.

With a 30 year history of providing professional engineering services to the marine community, BMT Fleet Technology offers support in hydrodynamic analysis, full scale sea trials and model test coordination.

Demonstration Version

A demonstration version is available for download from our web site at www.fleetech.com



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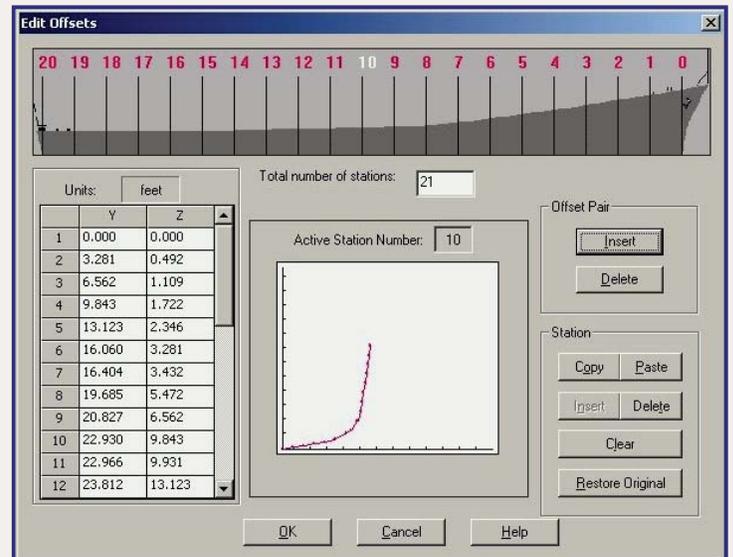
ShipmoPC - Technical Features

Development Background and Technical Features

ShipmoPC is a derivation of the SHIPMO 7 seakeeping predictions code developed by Defence Research and Development Canada (DRDC).

SHIPMO is a strip-theory based frequency domain seakeeping code capable of computing the six degree-of-freedom motions of a monohull with forward speeds in regular as well as irregular seas of arbitrary headings. Response Amplitude Operators (RAO's) for the longitudinal (heave, pitch and roll) and the lateral (sway, roll and yaw) motions are derived for the complete range of frequencies using the hull geometry input for the specified speeds and headings. The ship dynamics model of SHIPMO is capable of accounting for the hydrodynamic effects from rudders, bilge keels and other appendages as well as tank roll stabilizers. Autopilot routines are incorporated, allowing rudder roll stabilization to be modelled.

Motions in an irregular seaway may be calculated either by specifying a theoretical spectrum or by a set of measured spectral ordinates input by the user. Several theoretical spectral formulations built into the code: the Bretschneider spectrum, the JONSWAP spectrum, the Quadratic Regression spectrum, and six-parameter and ten-parameter spectra. Both unidirectional and short-crested seas can be specified, the latter being represented by cosine-squared spreading. Computed results such as RAO's (amplitudes and phases) and the significant (single amplitude) motions in all six modes are generated. For any specified location on the hull, computed output includes parameters such as accelerations, probability and frequency of incidence of deck wetness, keel emergence and slamming, as well as slam pressures and forces. In addition, the program will produce habitability indices such as Motion Induced Interruptions (MIIs).



Updated, Validated, User Friendly Software

Through this basis in SHIPMO, ShipmoPC has been validated against a large number of ships ranging from coastal defence vessels and barges to icebreakers and naval ships. Utilizing the capabilities listed above, users can specify vessel features and environmental factors in order to predict monohull ship motions. It includes a mouse-driven, colour front-end as well as graphical and tabular presentations of the results.

BMT Fleet Technology Limited provides both technical support for ShipmoPC, as well as extensive marine consulting services. With a 30 year history of providing professional engineering services to the marine community, BMT Fleet Technology Limited offers support in hydrodynamic analysis, full scale sea trials and model test coordination.

ShipmoPC Price List 2007

All Prices in US Dollars

ShipmoPC Version 3.x

New Purchase Version 3.x with loads	\$ 7 250
New Purchase Version 3.x no loads	\$ 5 500

Upgrade to Loads version:

From 3.x no loads	\$ 2 000
From 2.x	\$ 3 250
From 1.x	\$ 5 250

Upgrade to No Loads version:

From 2.x	\$ 1 500
From 1.x	\$ 3 750

Educational Discount	- 50%
Extra License (networked)	+33% per seat

Leasing Options

The software may be leased for 3 month periods. Please contact BMT for a price.

Note: Any upgrade from Version 2.x to either 3.x program requires the return of the 2.x hardware lock.

Shipping and Handling Charges

\$40 if shipped within the United States. \$75 to Europe and other destinations.

All duties, taxes and import fees are the responsibility of the purchaser and vary for each country. Deliveries are shipped within 24 hours of ordering. Delivery times will depend upon the destination.

Customer Support

User support is provided for the first year free, up to 5 (five) hours of assistance. Thereafter technical support is charged at the current hourly rate or a package of one year of maintenance and upgrade support may be purchased on an annual basis for \$1 250.

Terms

Programs will be shipped when funds are received. The software will be shipped upon receipt of a faxed copy of a bank draft noting the details of payment to:

Canadian Imperial Bank of Commerce
2217 Riverside Drive East
Ottawa, Ontario Canada K1H 1A1
Institution: #010
Account: #1203118
Transit: #00086

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ShipmoPC - Frequently Asked Questions

What hardware is required to run ShipmoPC?

ShipmoPC will run on any system configured to run Microsoft WINDOWSTM 9x, NT (Service Pack 2 or greater), 2000 or XP. It has not yet been tested with Vista. The recommended minimum hardware configuration to run ShipmoPC is:

1. Pentium 200 MHZ Processor with 32 MB of RAM
2. Microsoft or Equivalent Mouse
3. Minimum 10 MB Disk Storage

Does ShipmoPC require the use of a "dongle" security device?

Our software does use hardware protection. ShipmoPC and other selected BMT Fleet Technology Ltd software products use a parallel port or USB hardware lock that permits greater flexibility including the leasing of our software. We have found that a hardware lock is more convenient and easy to use than a software lock.

What kind of printers does ShipmoPC support?

ShipmoPC prints using the standard WINDOWS printer drivers.

What documentation comes with a purchase of ShipmoPC?

ShipmoPC is packaged with a comprehensive user manual.

For what types of ships is ShipmoPC valid?

ShipmoPC can be used for monohull ships of all sizes. Because the program is based on linear strip theory, the accuracy of motions predictions will tend to decrease for ships having a length-to-beam ratio of less than four (4). ShipmoPC has been validated against a large number of ships ranging from coastal defense vessels to cargo ships, barges, icebreakers and naval ships.

Is the program valid for low and/or zero forward speeds?

Yes. ShipmoPC motions predictions are valid for Froude numbers ranging from 0 to 0.35. For $Fr > 0.35$, predictions are expected to be less accurate.



Photo courtesy of NOAA

Is the program based on strip theory or 3D diffraction?

ShipmoPC is a strip theory-based, frequency domain seakeeping code capable of computing the six degrees-of-freedom motions of a monohull with forward speeds in regular as well as irregular seas of arbitrary headings.

How is the ship hull defined?

ShipmoPC permits the user to define the hull in one of two ways; by defining the hull offsets or by defining the sectional area curve. If the former method is selected, the user can view the shape of each station (from keel to deck edge) as the offset points are entered. In the latter case, once the hull sectional areas are defined, ShipmoPC generates offsets using either Lewis Forms or M.I.T. Forms. The locations of the stations are also graphically indexed using a hull profile.

Can I produce Polar Plots of my results?

Yes. ShipmoPC can generate speed-referenced polar plots of any of the motion response parameters. The program also produces formatted text output and X-Y plots of results.

Is it possible to model the influence of bilge keels, roll fins and passive roll stabilization?

ShipmoPC permits the user to specify any combination of the following appendages: bilge keels, skegs, fin stabilizers, anti-rolling tanks (controlled passive or purely passive), propeller

ShipmoPC - Frequently Asked Questions

shaft brackets and rudders. The user may also specify the use of an autopilot for use with rudder roll stabilization. All of these features are accounted for in the prediction of motions.

Does ShipmoPC use Lewis Forms or Boundary Element method? Is it possible to specify some Lewis and some Boundary Element sections?

ShipmoPC allows the user to choose either the Boundary Element method or the Lewis Forms (a.k.a. conformal mapping) Method to determine the hydrodynamic properties of the hull. We do not offer the option to specify a mix of Boundary Element and Lewis Forms methods. Earlier versions of ShipmoPC offered the Frank Close-Fit method. Version 3.x replaces this method with the Boundary Element method.

How is the wave data defined?

The wave data can be defined using standard Wave Spectra, such as Bretschneider, JONSWAP, six-parameter, or ten-parameter spectra. Alternatively, the user can specify an external file defining the wave spectrum.

Can I produce response predictions for local areas away from the C.G.?

Yes. ShipmoPC calculates motions, speed, and accelerations for local positions, including off-centerline points. The program also will predict frequencies of deck wetness, keel emergence, and slamming. Finally, the program will produce habitability indices such as motion-induced interruptions (MIIs).

What are the differences between ShipmoPC v2.x and ShipmoPC v3.x?

The new version of ShipmoPC has a number of changes from version 2.x. The new version uses the most recent version (version 7) of the DREA

program SHIPMO. This calculation engine has a number of changes from the older versions. The Frank Close-fit method of computation has been replaced by the Boundary Element method, and loads at designated longitudinal locations can now be calculated. Older ShipmoPC version 2.x files can still be used with the new version.

Are there special prices for certified educational institutions?

Yes, we offer a special price schedule for educational institutions. The discount is 50%.

What is the procedure to upgrade to the newest version?

We offer a special price schedule for past purchasers of ShipmoPC. Consult our [price list](#) for the applicable upgrade cost.

Is training required in order to use this software?

It is our experience that with the guidance of the user manual, the directions in the program interface are comprehensive enough that a new user can operate the program with relative ease. Training sessions for user groups can be organized by special arrangement.

What technical support will I receive with ShipmoPC?

User support is provided for the first year free, up to 5 (five) hours of assistance. Thereafter, technical support is charged at the current hourly rate or a package of one year of maintenance and upgrade support may be purchased on an annual basis for \$1250.

Is a demonstration version available?

Yes, if you haven't received one with this package, contact us to receive a demonstration version of ShipmoPC at no charge, or download it from our website at www.fleetech.com.

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ShipmoPC - International Client Base

Sold and supported around the world, both ShipmoPC and BMT Fleet Technology Limited's consulting services have an established, internationally recognized performance portfolio in the global ship design community.

Windward Design	USA	North American Shipbuilding
Bold Craft Engineering	USA	Ingalls Shipbuilding Inc.
U.S Merchant Marine Academy	USA	Tidewater Marine
Marine Design and Operations, Inc.	USA	Underwater Services Inc.
HydroComp Inc.	USA	Lockheed/Martin Missile & Space
U.S. Naval Academy	USA	J. F. Moore
Polar Design Associates Ltd.	Canada	T&T (E.Y.E.) Marine Consultants
Alfonso M. Sotres & Assoc. Ltd.	Canada	St. John Shipbuilding Ltd.
Canadian Coast Guard	Canada	Marine Institute Canada
MIL Systems	Canada	Canmar
Memorial University of Newfoundland	Canada	
Vosper International Ltd.	England	Brookes, Bell & Co.
University of Plymouth	England	Vosper Thornycroft (Hydraulics)
Vosper Thornycroft (UK) Ltd.	England	University College of London
Thomson Sintra Pacific PTY Ltd.	Australia	Bryan Chapman & Associates
Blohm+Voss Australia PTY. Ltd	Australia	Seatech Consultants PTY. Ltd.
Ligustica SA	Italy	Cantiere Navale Sec.
Dr. Carlo Coluccia	Italy	G. R. Dicovi & Associates
RexRoth Italia	Italy	Studio Engineering
Israeli Navy/Government of Israel	Israel	Israel Aircraft Industries International
JB SeaForm	Sweden	Swedish Navy (FMV)
United Ship Design & Development Center	Taiwan	Lung-Teh Shipbuilding Co. Ltd
Trosvik Engineering	Norway	Vik and Sandvik
Madrid University	Spain	Bazan Shipyard
University of Glasgow	Scotland	Heriot-Watt University
Brown Brothers & Co. Ltd.	Scotland	
Goa Shipyard	India	Garden-Reach Shipyard
Misisterio da Defensa	Portugal	Rinave, SA.
Construction Mechaniques de Normandie	France	D2M Consultants
Helsinki University of Technology	Finland	
Maritime & Industrial Services Ltd.	South Africa	
Consultants Marine Singapore	Singapore	
Intering	Germany	
Croatian Register of Shipping	Croatia	
Danmarsk Tekniske Univeritet	Denmark	
National Petroleum Construction Co.	UAE	
Royal New Zealand Navy	New Zealand	
Naval Supply Group Command	Turkey	

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