

TERMS of USE

FUNCTION / SUB FUNCTION		OFFERING DATA	ACCESS	PRICE	
General	Main Dimension	—	—	Included in basic rate	
Search	Search Model Ship	Principal particulars in model ship database	No limit		
	Cra / Cw Curve	Cra / Cw			
Hull Form Create	Result Report				
	Body Plan	Type Ship Body Plan			
	Cp Curve	Cp Curve			
Power Prediction	Condition Set	M-S Correlation, Air Allowance, etc.			
	Power Curve	Power Curve			
	Detail Report	Calc. Result			50 ships per year
Output	Hull Form Download	Created Ship Hull Form			5 ships per year

* More accesses over the limit are available for additional charge.

DATABASE of MODEL TEST

Number of data	Model Test : Over 1,200 cases Hull Form : Over 420 cases
Ship Type	Bulk Carrier
	Ore Carrier
	Tanker
	Product Carrier
	LNG Carrier
	LPG Carrier
	General Cargo Ship
	Reefer
	Container Ship
	PCC / PCTC
	RORO
	Ferry / RoPax
	Passenger Ship
	Range of Principal Particulars
B / d : 2.2 ~ 6.4	
Cb : 0.3 ~ 0.9	

Additional Services

Optimizing hull form by CFD

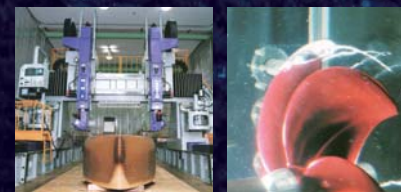
- High accuracy power prediction by advanced CFD analysis.
- Consulting about propulsion performance improvement.
- Creating Trim Chart.

Optimizing bulbous bow / Designing energy-saving devices

- Optimizing / Remodeling bulbous bow with advanced CFD analysis.
- CFD analysis combined with propeller, rudder, and energy-saving devices for best combination.

Model Ship Test

- Model testing services
 - with created hull model.
 - with your own hull model.
- Wide variety of model testing service :
 - Resistance test / Self propulsion test
 - Maneuvering test
 - Seakeeping test
 - Propeller open water test
 - Cavitation test
 - Wind tunnel test



NC Cutting machine Cavitation test

* Test items can be customized according to the requests.

MITSUBISHI SHIPBUILDING POWER PREDICTION & LINES SELECTION

MiPoLin®

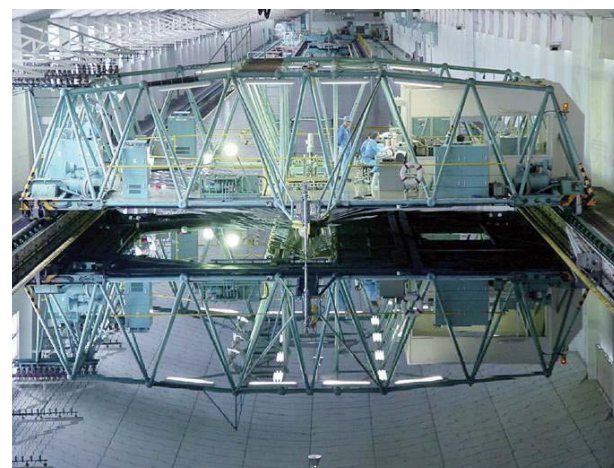


MITSUBISHI SHIPBUILDING POWER PREDICTION & LINES SELECTION

The "Power Prediction & Lines Selection" system is a Web-based application based on the database of model test results accumulated in MHI Nagasaki Model Basin for over 100 years.

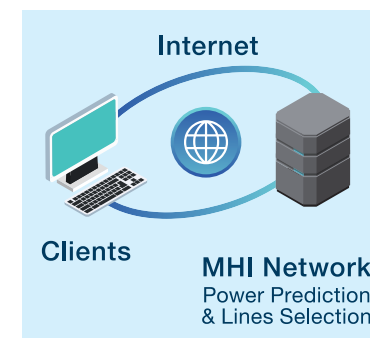
Features

- This application enables users to utilize vast model testing database consisted of over 1,200 cases for various kinds of ships obtained in Model Test Basin of MHI in Nagasaki.
- Type ship are selected from database referring to principal particulars for the study, and model testing results of type ship (ex. resistance curves) can be checked.
- Prismatic coefficient curve and hull form for the study are created from the type ship. Power prediction is also executed.
- The hull form are supplied as offset data in Mitsubishi standard format. The data can be converted into NAPA 3D hull with a free-of-charge macro attached to this app browser page.
- This web-based application is accessible from wherever the Internet connection is available, using typical web browsers,



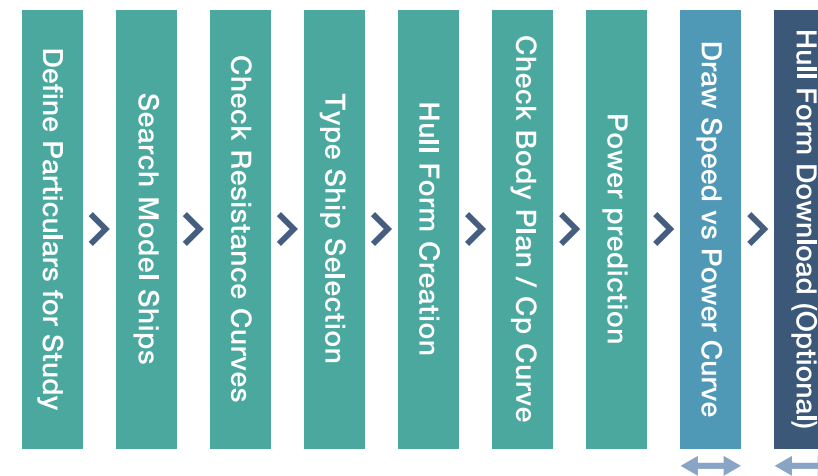
Model Basin of Mitsubishi Heavy Industries, in Nagasaki

System Configuration



Clients will access to the web site for the system located in MHI network.

Process Flow Diagram



* Number of execution is limited (See "TERMS of USE" on next page.)

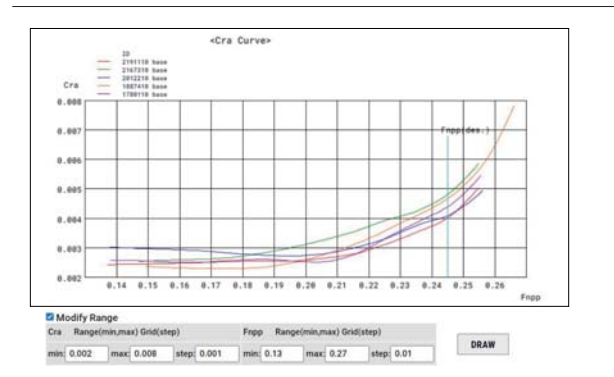


MITSUBISHI SHIPBUILDING POWER PREDICTION & LINES SELECTION

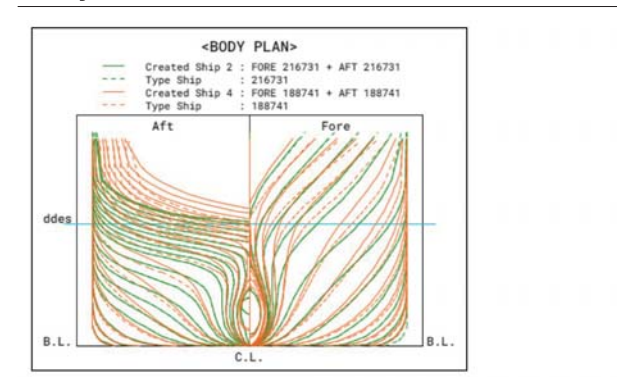
- General
- Main Dimension
- Search
 - Search Model Ship
 - Cra / Cw Curve
- Hull Form Create
- Result Report
- Body Plan
- Cp Curve
- Power Prediction
- Condition Set
- Power Curve
- Detail Report
- Output
 - Hull Form Download
- Support
 - Document, etc
 - Contact Us

Search Model Ship

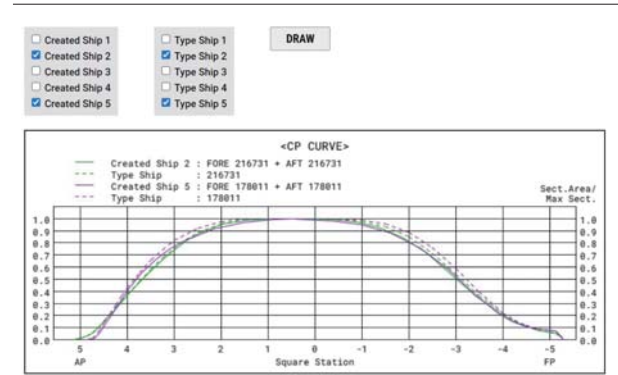
Cra / Cw Curve



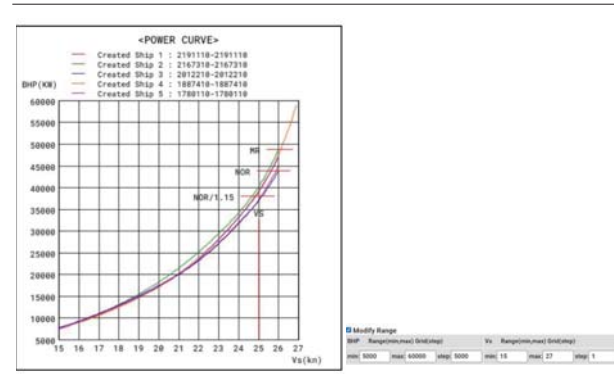
Body Plan



Cp Curve



Power Curve



Power Prediction > Detail Report

POWER CALCULATION (1)											
DESP.	LML	S/NAB									
76291.7	330.6	7.298									
STERN TUBE											
ATR ALLOW.	LOSS	BHP/SHP	NO OF VS								
3.9	PER	0.918	1.928								
CENT											
FRANTZ-SCHLICHTING											
VS	FR	REV	1-85	CR	CF1						
1.17	1-88	J	EP <td>EA</td> <td>EE</td> <td colspan="6"></td>	EA	EE						
RKT/J	S	EP									
EMPF(KW)	EMPR(KW)	EMPT(KW)	EMPA(AZR)KW	THRUST	THP(KW)						
EMPK(KW)	LOSS(KW)	SHP(KW)	HP(KW)	W	GAD	EMPA/HP					
15.800	0.8490	0.7561	0.7794	1.0240	1.0892	0.9780					
	0.5510	0.2187	0.2451	0.0709							
	4893	1929	5853	5205	81.81	4778					
	8490	0.7561	0.7794	1.0240	1.0892	0.9780					
	0.5498	0.2178	0.2409	0.0762							
	4856	1248	6185	6286	91.75	5773					
	8337	274	8618	8762	61.44	616.6					
17.800	0.1652	0.2184E+10			0.80249	0.89954					
	0.8490	0.7561	0.7794	1.0240	1.0892	0.9780					
	0.5486	0.2171	0.2406	0.0764							
	5783	1599	7282	7511	183.15	6895					
	9955	290	18245	18458	65.22	621.5					
18.800	0.1750	0.2228E+10			0.80254	0.89948					

1 Search Model Ship

- Model ships with principal particulars close to design ship are offered from the database of our model basin.
- Type ships are selected from the offered model ships on user's judgement.
- Resistance coefficient is estimated from each type ships model testing database. (Cra, Cw Curve)

2 Hull Form Create

- Hull form is created from the selected type ship's hull data with defined particulars for design ship.
- Body Plan / Cp curve of created ship can be compared with those of type ship and can be checked as a figure.

3 Power Prediction

- Parameters for calculation are set up automatically.
- Parameters for calculation are set up also manually.
- The speed & power curves / detail report are provided as output.

4 Hull Form Download

- It is possible to download Created hull form from this system as offset data in Mitsubishi standard format.
- Macro for converting downloaded hull form offset data into NAPA 3D hull is also available.