

## Namura completes 250,000DWT type ore carrier, BAO FU



Namura Shipbuilding Co., Ltd. delivered BAO FU, a 250,877DWT ore carrier, to Wealth Line Inc. at its Imari Shipyard & Works on Oct. 26, 2010. This is the first vessel of the 250,000DWT type of ore carrier and the principal dimensions of the vessel satisfy the restrictions of Port Hedland, Port Walcott, and Dampier, which are the three major ports in Western Australia, so this type is called WOZMAX (Western Australia [Aussie: OZ] Max).

Namura has established the improved design by drastic review and modification of the specifications of the existing 230,000DWT type ore carrier. For instance, the accommodation facilities have been upgraded to provide the crew with more comfortable living quarters.

For improving propulsion performance and saving fuel oil, the Namura flow Control Fin (NCF) and high-efficiency propeller are equipped, and low-friction and tin-free type A/F (anti-fouling) paint is applied to the underwater hull. Mooring arrangements satisfy the requirements of Ponta Da Madeira in Brazil. A vacuum sewage unit combined with a sewage treatment system is installed. The flow-through method is adopted for the ballast water exchange, making handling easy.

The main engine is the MAN B&W 7S80MC-C (Mark

7) type and engine room machinery is automated based on the NK M0 concept. Central fresh water-cooling system is applied to the main engine and auxiliary machinery for easy maintenance.

Other special provisions, such as Means of Access for inspection, double sided skin construction applied to fuel oil tanks, air seal type stern tube sealing device, etc., are provided to improve safety, environment protection, and reduction of labor and operation costs, while complying with the recent international regulations. An elevator is installed for traveling between the accommodation quarters and the engine room.

### Principal particulars

L (o.a.) x L (b.p.) x B (mld) x D (mld) x d (mld):	329.95m x 321.00m x 57.00m x 25.10m x 18.00m
DWT/GT:	250,877t/132,537
Main engine:	MAN B&W 7S80MC-C (Mark 7) diesel x 1 unit
M.C.O.:	21,910 kW x 74.5 min <sup>-1</sup>
Speed, service:	15.0kt
Complement:	25
Classification:	NK
Flag:	Republic of Panama



For further information please contact:

Website: <http://www.jsea.or.jp>

## JAPAN SHIP EXPORTERS' ASSOCIATION

2-2, Toranomon 3-chome, Minato-ku, Tokyo 105-0001 Tel: (03) 5425-9671 Fax: (03) 5425-9674 E-Mail: [postmaster@jsea.or.jp](mailto:postmaster@jsea.or.jp)

## New containership with 30% CO<sub>2</sub> reduction developed

IHI Marine United Inc. (IHIMU) has completed an eco-friendly 13,000TEU class containership that can drastically reduce the load on the environment.

The new design features improved propulsive performance through the use of twin skegs and enhanced energy efficiency in the engine department and elsewhere, resulting in about 30% reduction in greenhouse gas (GHG) emissions and fuel consumption over the comparable conventional vessel.

Combined with operational developments such as the use of an optimal operation system, these features can achieve an ultimate saving of 45%. IHIMU positions this containership as the first product of its reduced environmental load series, and will make developmental attempts for eco-friendly vessels of other types.

The reduced environment load ships embodying the new concept are called the eFuture series, and IHIMU has named the recently designed 13,000 TEU class containership as the eFuture 13000C. The newly developed vessel is intended to emit 30% less CO<sub>2</sub> per TEU than the conventional 13,000 TEU class containership.

This target has been reached by achieving approximately 21% reduction with improved propulsive performance, 10% saving with enhanced plant efficiency and 1% cut by the use of natural energy.

The greatest contributing factor to the improvement in propulsive performance is the unique hull form. The twin-skeg hull form integrating the twin propeller shafts into the hull halves the propeller load and enhances the propeller efficiency.

In addition, a huge bonnet extending from the bow tip to the bridge reduces the wind pressure resistance, the hub vortex is eliminated by a rudder bulb, efficiency is improved by tip rake propellers with unique blade tips, and low-friction paint is used.

For enhancing plant efficiency, a

hybrid propulsion engine combining a low-speed electronically controlled engine and a shaft generator will be used, and the installation of a generator plant utilizing the exhaust gas and waste heat of the main engine is intended.

In addition, IHIMU has developed a photovoltaic power generation panel that can be handled in the same way as a container. Such panels are mounted on the top pier of on-deck containers, and the power generated is stored into lithium ion cells.

The improvements in the hardware aspect combining these already available technologies gave reasonable prospects for 30% energy saving, and together with an optimal operation system and slow steaming makes possible further saving.

These technologies and techniques can also be applied to containerships of other capacity classes. Future themes of technological development along this line include an LNG-fired propulsion system and an electricity storage system utilizing large capacity cells.

### To our readers

- Please notify us of any change in address by letter, telefax, or E-mail together with the old mailing label to ensure you continue to receive SEA-Japan.
- We welcome your comments about SEA-Japan. Please address all correspondence to the Japan Ship Exporters' Association (JSEA), or the Japan Ship Centre (JETRO) in London.
- Address (Tokyo): 2-2, Toranomon 3-chome, Minato-ku, Tokyo 105-0001 / Tel: (03) 5425-9671 Fax: (03) 5425-9674  
E-mail: [postmaster@jsea.or.jp](mailto:postmaster@jsea.or.jp)
- Address (London): 2nd Floor, 6 Lloyd's Avenue, London EC3N 3AX, UK / Tel: +44 (0) 20 7680 9456 / Fax: +44 (0) 20 7680 9416  
E-mail: [info@jsc.org.uk](mailto:info@jsc.org.uk)  
URL: <http://www.jsc.org.uk>  
Portalsite: [maritimejapan.com](http://maritimejapan.com)



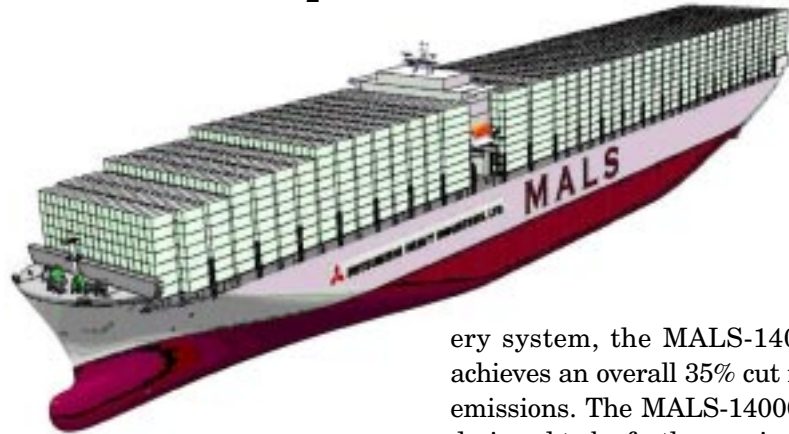
## MHI completes conceptual design of “MALS-14000CS” eco-friendly container vessel to reduce CO<sub>2</sub> emission by 35%

As preventive measures for global warming, carbon dioxide (CO<sub>2</sub>) emission reduction is strongly required in the area of international maritime transportation. Therefore, Mitsubishi Heavy Industries, Ltd. (MHI) has completed the conceptual design of the “MALS-14000CS,” a new Panamax size 14,000TEU container vessel that will contribute to the prevention of global warming.

The MALS-14000CS adopts the company's proprietary Mitsubishi Air Lubrication System (MALS), that pumps air along the bottom of the hull to produce air bubbles which reduce frictional resistance between the hull and seawater.

Incorporating the MALS, along with today's most advanced high-efficiency ship hull design and propulsion system, the vessel will reduce emissions of CO<sub>2</sub>, a major greenhouse gas (GHG), by 35% compared with container carriers of the conventional design.

The MALS-14000CS is designed to realize a 10% reduction in CO<sub>2</sub> emis-



sions through the MALS. The ship design, featuring a new high-performance hull form, places the bridge relatively forward, with additional container holder space under the accommodation quarter and exhaust funnels at the stern.

The new ship design, providing increased container carrying capacity, coupled with a two-engine, two-shaft propulsion system, enables a reduction in CO<sub>2</sub> emissions of 24%. Combined with another 5% reduction enabled by the electronically controlled diesel engine and waste heat recov-

ery system, the MALS-14000CS achieves an overall 35% cut in CO<sub>2</sub> emissions. The MALS-14000CS is designed to be further environmentally friendly through installation of a SO<sub>x</sub> scrubber to remove sulfur oxide (SO<sub>x</sub>) from flue gas and a ballast water treatment system.

MHI will continue to accord priority to the development of vessels addressing CO<sub>2</sub> reduction requirements by focusing on development of its “Eco-ship” and expansion of applications to include other ship types, leveraging its strength in handling ships and major marine-use machinery as well as the company's leading-edge technologies in energy-saving and environment related areas.

## Imabari completes 53,862DWT copper ore and sulphuric acid carrier, MAR CAMINO

Imabari Shipbuilding Co., Ltd. completed construction of MAR CAMINO (HN:S-694), a 53,862DWT special combination carrier for copper ore and sulphuric acid and delivered the vessel to Osorno Shipholdings S.A. at the Imabari shipyard on Sep. 13, 2010.

The MAR CAMINO is the diesel

engine driven single screw type designed specially to carry bulk ore and chemical liquid. The vessel is the replacement for the predecessor and is now plying between Japan and Chile. Sulphuric acid is transported to Chile for refining copper ore, and the return trip transports copper ore from Chile.

The vessel has the raked stem with

protruded bulbous bow and the transom stern having the mariner type stern frame with a hanging rudder. There are five cargo holds (copper ore compartments) and three

cargo tanks (sulphuric acid compartments). The vessel can load and unload at three different ports under the condition of homogeneous copper ore cargo.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 189.95m x 182.00m x 32.26m x 17.90m x 12.65m

DWT/GT: 53,862t/30,454

Loading capacity:

16,929m<sup>3</sup> (sulphuric acid tanks)

36,790m<sup>3</sup> (Copper ore holds)

Main engine: HITACHI-MAN B&W 6S50MC-C (Mk 7) diesel x 1 unit

MCR: 9,480kW x 127rpm

Speed, service: 15.0kt

Complement: 24

Classification: NK

Delivery: Sept. 13, 2010





## Mitsui "neo Supramax 66BC" makes debut

—30% reduction in CO<sub>2</sub> emission possible—

Mitsui Engineering & Shipbuilding Co., Ltd. has started marketing a 66,000DWT bulk carrier of the next generation named "neo Supramax 66BC" as the first type of ship capable of reducing CO<sub>2</sub> emissions by 30%. The new ship is an enlarged version of Mitsui's best selling 56,000DWT-type Handymax 56BC bulk carrier (over 160 orders received), thus maintaining its convenience in operation.

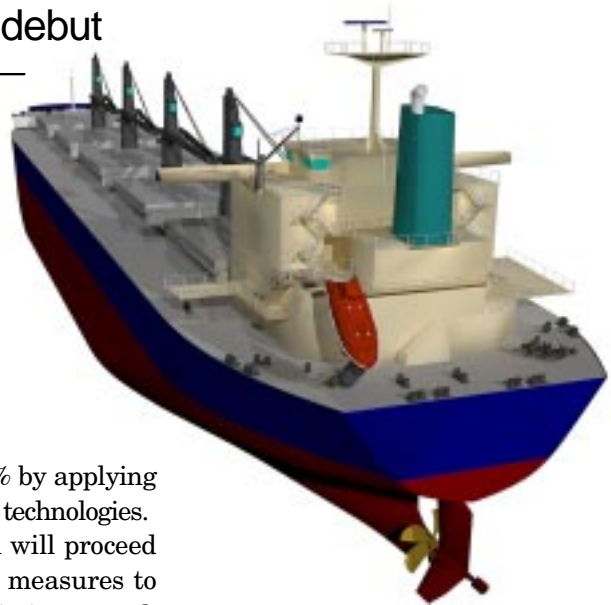
Development of the ship's design was preceded by discussions with the owners and operators and investigations of more than 600 ports in the world. The new version is designed to have a wide beam (36m) and shallow draft, considering the present trade patterns of the 56BC type and the Panama Canal expansion expected to be completed in 2014.

Despite the larger size, the "neo Supramax 66BC" achieves lower fuel consumption than that of the 56BC by adopting Mitsui's newly developed energy-saving hull form. Mitsui has two types of specifications, the Pre-

mium model and the Standard model. The Premium model achieves reduction in CO<sub>2</sub> emissions by about 21% on ton-mile basis. Furthermore, CO<sub>2</sub> emission will be reduced up to about 30% by applying optional soft/hardware technologies.

In addition, Mitsui will proceed with development on measures to meet SO<sub>x</sub> and NO<sub>x</sub> emission control, which will become increasingly severe in the future. Besides, proactive design for future installation of the ballast water treatment system is adopted, which is a hot current topic in maritime industries.

Features of the "neo Supramax 66BC" will include: General use bulk carrier equipped with deck cranes; fuel consumption lower than that of Mitsui 56BC; designed to carry various bulk cargoes including coal, iron ore,



wheat, barley, soy beans, etc.; suitable to carry lengthy/heavy cargoes such as steel pipes and hot coils; hatch opening is optimized to meet the existing cargo handling equipment at various ports.

Principal Particulars of "neo Supramax 66BC"

L (o.a.) x B x D x d:	200m x 36m x 18.45m x 12.9m
Deadweight:	66,000t
Speed, service:	14.5kt

## Kawasaki completes bulk carrier, KT ALBATROSS

Kawasaki Heavy Industries, Ltd. delivered the 58,743DWT bulk carrier, KT ALBATROSS (HN: 1675), to the owner, Zenith Maritime S.A. at the Sakaide Shipyard on Dec. 1, 2010. The vessel is the third of the 58,000DWT bulk carrier series.



The bulk carrier is the flush deck type with a forecastle and has five cargo holds that can load a variety of cargoes such as cereals, coal, ore, steel products, etc. Four deck cranes installed between hatch covers on the ship centerline facilitate cargo handling work at

ports that have insufficient facilities.

The vessel adopts the Common Structural Rule (CSR) to strengthen the hull structures and ensure the ship safety in the sea. The Performance Standard

for Protective Coatings (PSPC) is also applied to the ballast water tanks. Fuel oil tanks are protected with double hull structures to avoid marine pollution by oil leakage. Therefore, the vessel is considered to be a eco-friendly design. The main engine uses the energy-saving type low-speed diesel engine, and the Kawasaki rudder bulb with fins (RBS-F) is employed. These combined effects contribute to reduction of energy consumption.

Principal particulars

L (o.a.) x L (b.p.) x W x D x d:	197.00m x 194.00m x 32.26m x 18.10m x 12.65m
DWT/GT:	58,743t/33,096
Cargo hold capacity:	73,614m <sup>3</sup>
Main engine:	Kawasaki-MAN B&W 6S50MC-C7 diesel x 1 unit
MCR:	8,630kW x 116rpm
Speed, service:	about 14.45kt
Complement:	28
Classification:	NK

## Sanoyas completes Panamax bulk carrier IKAN BAGAT

Sanoyas Hishino Meisho Corp. completed the Panamax bulk carrier, IKAN BAGAT for Kashima Naviera S.A. of Panama at the Sanoyas Mizushima Works and Shipyard for delivery on Nov. 25, 2010. The vessel applies Common Structural Rules (CSR) of the International Association of Classification Societies. The IKAN BAGAT is the 18th of the 83,000DWT-type Panamax series developed by Sanoyas, featuring the largest deadweight and cargo hold capacity in the world as a Panamax bulk carrier.

For improvement of propulsion efficiency, the vessel is equipped with a low-speed and long-stroke main engine combined with a high-efficiency propeller and the Sanoyas energy saving device called the Sanoyas-Tandem-Fin (patent) with max. 6% energy saving on the stern shell, which also contributes to the reduction of CO<sub>2</sub> emissions.

Cargo hatches are widened as much as possible for improvement of cargo-handling efficiency. Dedicated fresh water tanks are provided for



storing hold-washing water generated by a large-capacity fresh water generator. In addition, a special fuel oil heating system is applied to fuel oil storage tanks in order to avoid cargo damage by overheating and save steam consumption.

For protection of the environment, various countermeasures are provided, which include fuel oil tanks of double hull structures, a holding tank for accommodation discharges and dirty hold bilge, and an independent bilge segregation system for the engine room.

### Principal particulars

Hull No.:	1294
L (o.a.) x L (p.p.) x B x D x d:	229.00m x 224.00m x 32.24m x 20.20m x 14.598m
DWT/GT:	83,476t/44,349
Cargo hold capacity (grain):	96,121m <sup>3</sup>
Main engine:	MAN B&W 6S60MC-C diesel x 1 unit
MCR:	10,740kW
Speed, service:	about 14.0kt
Complement:	25
Classification:	NK
Delivery:	Nov. 25, 2010

## Universal completes 301,500DWT crude oil tanker, MAERSK HAKONE

Universal Shipbuilding Corporation delivered the MAERSK HAKONE, a 301,500DWT crude oil tanker at the Ariake Shipyard on Nov. 16, 2010. The vessel is the fifth of the Malacca-max design series. The MAERSK HAKONE is designed to pass through the Strait of Malacca and have flexibility for port restric-

tions in Japan. Therefore, the vessel can carry crude oil more efficiently from the Middle East to Japan.

The Universal Ax-Bow is employed for the bow to reduce wave resistance at sea. The vessel is equipped with the Super Stream Duct and Surf-Bulb (Rudder Fin with Bulb) in front of and behind the propeller. The Ax-Bow,

Super Stream Duct and Surf-Bulb can dramatically improve propulsive efficiency and reduce fuel consumption compared with the conventional tanker.

Inboard W.B.T. is arranged to provide a good balance of hull strength, reduction of hull stress, and minimum deadweight loss under loaded conditions. The vessel uses double side skin construction for fuel oil tanks in order to reduce oil leakage risk due to side and bottom damage.

### Principal particulars

L (o.a.) x L (b.p.) x B x D x d:	333.0m x 320.0m x 60m x 29.4m x 21.0m
DWT/GT:	302,624t/159,806
Loading capacity:	350,263m <sup>3</sup>
Main engine:	MAN B&W 6S90MC-C diesel x 1 unit
Sea Speed:	15.8kt
Complement:	30
Classification:	NK
Completion:	Nov. 16, 2010





**CAPE MATHILDE**

Builder: Mitsui Engineering & Shipbuilding Co., Ltd.  
 Hull No.: 1716  
 Ship type: Bulk carrier  
 L (o.a.) x L (b.p.) x B x D x d: 292.00m x 282.00m x 44.98m x 24.70m  
 DWT/GT: 178,381t x 92,250  
 Main engine: Mitsui-MAN B&W 6S70MC-C diesel x 1 unit  
 MCR: 18,660kW x 91rpm  
 Speed: 15.5kt  
 Complement: 25  
 Classification: NK  
 Delivery: Nov. 29, 2010

**FEDERAL YUKINA**

Owner: Salter Shipping, S.A.  
 Builder: Oshima Shipbuilding Co., Ltd.  
 Hull No.: 10581  
 Ship type: Bulk carrier  
 L (o.a.) x B x D x d: 199.98m x 23.762m x 14.85m x 10.849m  
 DWT/GT: 35,868Mt/20465  
 Main engine: Kawasaki MAN B&W 6S46MC-C diesel x 1 unit  
 Speed, service: 14.0kt  
 Registration: Hong Kong  
 Classification: DNV  
 Completion: Oct. 28, 2010

**SAMOS**

Owner: Hibiya Maritime S.A.  
 Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.  
 Hull No.: 1362  
 Ship type: Tanker  
 L (o.a.) x B x D: 228.60m x 42.00m x 21.50m  
 DWT/GT: 105,000t/56,000  
 Main engine: Mitsui MAN B&W 6S60MC-C diesel x 1 unit  
 Speed, service: About 14.8kt  
 Classification: LR  
 Completion: Sept. 2, 2010

**SINFONIA**

Owner: Adorammar Shipping Inc.  
 Builder: Kanda Shipbuilding Co., Ltd.  
 Hull No.: 513  
 Ship type: General cargo ship  
 L (o.a.) x B x D x d: 177.00m x 28.60m x 14.35m x 10.034m (ext.)  
 DWT/GT: 33,174t/21,483  
 Main engine: Mitsubishi-Kobe Diesel 6UEC45LSE diesel x 1 unit  
 Speed, service: 14.15kt  
 Registration: Panama  
 Classification: NK  
 Completion: Oct. 19, 2010

**VENUS SPIRIT**

Owner: Secure Shipping Co., Ltd.  
 Builder: Naikai Zosen Corporation  
 Ship type: Car carrier  
 L (o.a.) x L (b.p.) x B x D x d: 183.00m x 30.20m x 28.80m x 8.45m (ext.)  
 DWT: 46,000t  
 Car carrying capacity: 5,000 units (Car size: L x B x H: 4.125m x 1.550m x 1.420m)  
 Main engine: MAN B&W 6S60MC-C diesel x 1 unit  
 MCR: 12,210 kW x 105min<sup>-1</sup>  
 Speed, service: abt. 19.0kt  
 Classification: NK  
 Completion: Jan. 28, 2011

**ARGENT IRIS**

Owner: Argent Navigation S.A.  
 Builder: Shin Kurushima Dockyard Co., Ltd.  
 Hull No.: S-5542  
 Ship type: Chemical tanker  
 L (o.a.) x B x D x d: 174.43/167.00m x 27.70m x 16.00m x 10.02/11.408m  
 DWT/GT: 34,862t/20,334  
 Main engine: 6UEC50LSII diesel x 1 unit  
 Speed, service: about 15.5kt  
 Registration: Marshall Islands  
 Classification: NK  
 Completion: Jan. 21, 2011

