

## Kawasaki develops large LNG-fueled containership



*LNG-fueled containership and fuel supply barge*

Kawasaki Heavy Industries, Ltd. has developed an LNG-fueled 9,000TEU containership and obtained Approval in Principle (AiP) from Det Norske Veritas (DNV).

LNG produces far less global-warming CO<sub>2</sub> and acid rain-causing NO<sub>x</sub> and SO<sub>x</sub> than conventional fuels, so is rapidly gaining attention as a cleaner alternative to heavy fuel oil for powering large cargo ships.

The new LNG containership is equipped with a fuel tank large enough for the ship to cross the Pacific both ways, easily adequate to navigate the North American and European Emission Control Areas (ECAs). The ship features a dual-fuel propulsion system, which enables heavy fuel oil to be used as backup fuel.

Adopting a 'two-island' design concept, the ship separates the accommodations and the engine room to maximize the container loading space. Installing the fuel tanks under the accommodations is another design consideration for securing cargo space.

LNG fuel will be stored in a newly developed IMO Type-B independent prismatic tank, which provides high volume efficiency. This tank features a proprietary heat insulation technology, Kawasaki Panel System, to minimize natural evaporation of LNG fuel.

The ship is powered by an electronically controlled, dual-fuel, low-speed diesel engine which, coupled with a fully optimized hull form, reduces environmental impact with its excellent combustion efficiency.

The International Maritime Organization (IMO) has

been gradually stepping up control of NO<sub>x</sub> and SO<sub>x</sub> emissions, and has already decided to put a limit on CO<sub>2</sub> emissions as well. Compared with containerships that run on heavy fuel oil, LNG-fueled containerships reduce CO<sub>2</sub> emission by approximately 30%. Further, to meet the new IMO SO<sub>x</sub> and NO<sub>x</sub> (Tier III) regulations slated to take effect in 2015 and 2016, respectively, these ships are designed to reduce emissions of NO<sub>x</sub> by as much as 80% and SO<sub>x</sub> by nearly 100%.

As a pioneer in the field of LNG-fueled ships and a major contributor to the industry in Norway, DNV represents the leading-edge of European technology in this field. Kawasaki has earned an AiP for both the overall design of the ship and the LNG fuel tank from DNV. Kawasaki will continue to perform a comprehensive safety evaluation in cooperation with DNV.

With a wealth of knowhow acquired over the years through its experience with LNG carriers, Kawasaki plans to make new inroads into the field of LNG-fueled vessels in an effort to create new values. Building on the latest development efforts, Kawasaki will continue to add to its offerings of eco-friendly ships.

Principal particulars of the LNG-fueled 9,000TEU containership

Length overall:	Approx. 308m
Breadth:	48.4m
Draught:	14.5m
LNG fuel tank:	Approx. 7,000m <sup>3</sup>
Approval in Principle (DNV)	



*LNG fuel tank*



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## MHI completes marine resource research vessel HAKUREI

Mitsubishi Heavy Industries, Ltd. (MHI) completed construction of HAKUREI (HN:1155), a marine resource research vessel and delivered the vessel to Japan Oil, Gas and Metals National Corporation (JOGMEC) at the Shimonoseki Shipyard & Machinery Works on January 31, 2012.

The HAKUREI is the first research vessel in Japan equipped with two types of large drilling equipment (Seabed seating type and onboard type), which are selectable depending on the submarine geological conditions.

To keep the vessel within the predetermined area and reduce underwater radiated noise, the vessel is equipped with an efficient dynamic positioning system utilizing 2-azimuth, large-diameter, low speed, skewed propellers, and 3-bow thrusters. Furthermore, the moon pool in the center of the hull enables the safe and efficient operation of survey equip-



ment.

**Principal Particulars**  
 L (o.a.) x L (b.p.) x B x D x d: 118.3m x 101.0m x 19.0m x 9.2m x 6.2m  
 GT: 6,283  
 Main propulsion system:  
 Electric motors 3,200kW x 2 units

Azimuth propellers x 2 units  
 Speed, service: 15.5kt  
 Cruising range: Approx. 9,000nm  
 Complement: 70  
 Classification: NK

## Sanoyas completes Panamax bulker SPRING AEOLIAN

Sanoyas Shipbuilding Corporation delivered the Panamax bulk carrier SPRING AEOLIAN (HN: 1321) to the owner Primavera Monatana S.A. at the Mizushima Shipyard on January 11, 2012.

This vessel is the 28th of the series of SANOYAS developed 83,000DWT type Panamax bulk carriers, featuring the largest deadweight and cargo hold capacity in the world as PANAMAX bulk carrier designed with the Common Structural Rules

(CSR) of the International Association of Classification Societies.

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 SANOYAS developed energy saving device called "STF" (Sanoyas-Tandem-Fin (patent); max. 6% energy saving) on the stern shell, which also contributes to the reduction of CO<sub>2</sub> emissions.

For efficient cargo handling, cargo hatches are widened as much as possible. Dedicated fresh water tanks are provided for storing hold washing water generated by a large capacity type fresh water generator. In addition, a special fuel oil heating system is ap-

plied for the fuel oil storage tanks to avoid cargo damage by overheating and to save steam consumption.

Various measures for protection of the environment such as fuel oil tanks with double hull structures, holding tank for accommodation discharges and dirty hold bilge, and independent bilge segregation system for the engine room, are incorporated.

**Principal particulars**

Owner: Primavera Monatana S.A.  
 Ship type: Bulk carrier  
 Hull No.: 1321  
 L (o.a.) x L (b.p.) x B x D x d: 229.00m x 224.00m x 32.24m x 20.20m x 14.598m (ext.)  
 DWT/GT: 83,478t/44,366  
 Cargo hold capacity: 96,078m<sup>3</sup> (grain)  
 Main engine: MAN B&W 6S60MC-C diesel x 1 unit  
 M.C.O.: 10,740kW  
 Speed, service: about 14.0kt  
 Complement: 25  
 Classification: NK  
 Delivery: January 11, 2012  
 Registry: Panama



## Imabari completes bulk carrier CMB VAN MIEGHEM

Imabari Shipbuilding Co., Ltd. completed construction of the CMB VAN MIEGHEM (HN: S-1564), a 95,737DWT bulk carrier, and delivered the vessel at the Marugame Headquarters on December 1, 2011.



The vessel is a diesel engine-driven single screw oceangoing bulk carrier suitable for carrying coal, ore, and grain cargoes.

The vessel is provided with side-rolling type hatch covers, which are operated by electric motor and chain drive systems. The sizes of the hatches are designed widely for convenience in cargo handling operations.

The vessel has an energy saving device installed

at the leading edge of rudder which contributes to environmentally-friendly/economical operation.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 234.98m x 227.00m x 38.00m x 19.90m x 14.45m  
 DWT/GT: 95,737t/50,617  
 Cargo hold capacity: 109,477m<sup>3</sup>  
 Main engine: Mitsui-MAN B&W 6S60MC-C (Mark 7) x 1 unit  
 MCR: 12,950kW x 101.0rpm  
 Speed, service: about 15.0kt  
 Complement: 25  
 Classification: NK  
 Delivery: December 1, 2011

## MES delivers 110,000DWT bulker JUBILANT SUCCESS

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) completed the 110,000DWT bulk carrier, JUBILANT SUCCESS (HN: 1818), which had been under construction at its Chiba Works, and delivered the vessel to her owner Clio Marine Inc., Liberia, on January 17, 2012.

The design of this vessel has been developed to aim at higher efficiency in the marine transport of iron ore, coal and grain in view of the future expansion of the Panama Canal. This vessel has achieved better environmental performance, greater flexibility in operation, and higher safety of vessel's construction. This is the second vessel of the newly designed "Over Panamax Type" bulk carrier series having the features as follows.

- This vessel has an over-Panamax width in consideration of the future expansion of the Panama Canal, and is designed to have accessibility to major coal unloading ports while maximizing the deadweight.
- This vessel can be assigned to wide range of transportation by its adequate structural strength and sufficient cargo hold capacity considering carriage of iron ore, coal and grain.
- This vessel is designed to achieve low fuel oil consumption by

adopting (of)the most advanced forms of bow and stern, high efficiency propeller, and other energy-saving devices.

- This vessel is designed in accordance with the Common Structural Rules for bulk carriers (CSR-B) of the International Association of Classification Societies (IACS) achieving both structural safety and operational flexibility.
- Enhanced safety is assured by satisfying new regulations for forecabin arrangement and bow part to reserve buoyancy.
- Arrangement of means of access in cargo holds and ballast tanks based upon the SOLAS regulations has achieved safe and efficient inspection of the vessel.
- Mooring equipment matches the requirements of iron ore loading ports in Brazil.
- The vessel meets the fuel oil tank protection regulations by MARPOL convention and has a

sewage tank to preserve marine environment.

- Main engine is MITSUI-MAN B&W 6S60MC-C Diesel Engine, which is compact and high-powered and satisfies IMO emission restriction for exhaust gas.

Principal particulars

L (o.a.) x L (b.p.) x B x D: 240.00m x 233.00m x 43.00m x 20.70m  
 DWT/GT: 110,909t/60,997  
 Main engine: MITSUI-MAN B&W 6S60MC-C diesel x 1 unit  
 MCO: 13,560kW x 105rpm  
 Speed: 14.5 knots  
 Complement: 25  
 Classification: NK  
 Registry: Panama  
 Delivery: January 17, 2012



## Namura completes 115,000DWT type product oil carrier FS DILIGENCE

Namura Shipbuilding Co., Ltd. delivered the 115,586 DWT product oil carrier FS DILIGENCE to Simosa Shipping Company Limited at its Imari Shipyard & Works on January 18, 2012.

This is the first vessel of a design of 115,000 DWT type product oil carrier which has been developed as a new generation double hull Aframax tanker series. Namura has drastically reviewed and modified the specifications by improving those of the existing 105,000DWT type product oil carriers.

The vessel has three sets of adequate capacity cargo pumps with a self-stripping system and can load three different grades of cargoes. Hull construction is designed and constructed in accordance with the Common Structural Rules (CSR). Pure ep-

oxy coating is applied to cargo oil tanks and cargo pipings in order to prevent the rust contaminating into the cargo. Vapour emission control system (VECS) is applied in compliance with USCG/CFR 46 Part 39. Radar type tank level gauges are equipped for cargo oil tanks, slop tanks and a residual slop tank.

The Namura flow control fin (NCF) is provided as an energy saving device.

### Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 249.97m x 241.00m x 44.00m x 21.20m x



14.80m

DWT/GT: 115,586t/63,057

Main engine: MAN B&W 6S60MC-C (Mark 7) x 1 unit

M.C.O.: 13,560kW x 105.0min<sup>-1</sup>

Speed, service: 15.2kt

Complement: 25

Classification: ABS

Flag: Hong Kong

## Naikai completes 37,800DWT general cargo ship NICOLINE BULKER

Naikai Zosen Corporation has completed construction of the 37,800DWT cargo ship NICOLINE BULKER for delivery to Lauritzen Bulkers A/S at the Innoshima Shipyard of Naikai Zosen.

This dry cargo vessel is constructed with the double-side shell construction for every cargo hold. The double-side shell design increases the hull strength and ensures stability against external damage, which makes the ship safer than the conventional type and improves maintenance in cargo holds.

Should external damage occur, the inner shell of the vessel can prevent loss or outflow of cargoes, securing quality of the cargoes. Fuel oil tanks are also protected by the double side shells complying with the international regulations for marine environment protection.

The vessel has broad beam and shallow draught and can enter shallow ports and navigate rivers, channels, and lakes. An adequate rudder area gives course keeping stability to the vessel despite the broad beam.

Cargoes include grains, coal, ores,

sulfur, cement, limestone, steel products, and lumber. Such lengthy cargoes can be accommodated in cargo holds and stacked on the upper deck. Cargo hold compartment consists of five holds.

The Nos. 2 through 4 holds are the box-shaped type, and four 30t deck cranes are mounted. Wide hatch openings allow loading lengthy cargoes and facilitate cargo-handling work.

The vessel, as an eco-ship, uses the latest energy-saving type low-speed main engine, a large-diameter propeller, SSD (Super Stream Duct) and Surf-Bulb (Rudder Fin with Bulb) for increased fuel efficiency. The Ax-Bow, a sharp-edged bow, is employed to improve seakeeping performance.

### Principal particulars

L (o.a.) x L (b.p.) x B x D x d:

184.75m x 177.00m x 30.60m x

14.50m x 9.55m

DWT/GT: 38,191t/23,950

Cargo hold capacity:

47,235.9m<sup>3</sup> (grain)

Main engine: Hitachi-B&W 6S46MC-C (Mark 7) diesel x 1 unit

D.M.C.O.: 6,780kW x 111.0min<sup>-1</sup>

D.C.S.O.: 6,100kW x 107.2min<sup>-1</sup>

Speed, service: about 14.3kt

Complement: 25

Classification: NK

Completion: Jan. 20, 2012





## Universal completes Panamax bulker KEY JOURNEY

Universal Shipbuilding Corporation delivered a 80,000DWT bulk carrier KEY JOURNEY at the Maizuru shipyard on February 17, 2012.

The ship is the 17th vessel of the newly designed Panamax bulk carrier and has the largest deadweight and cargo hold capacity within the restriction of the overall length for Panamax bulk carriers based on the use of various independent technologies.

The bow shape, called the "LEADGE-Bow," reduces the added wave resistance not only under the laden condition but also the ballast condition. The LEADGE-bow is newly developed and provides superior performance at sea to the previous "Ax-Bow," which was fitted to more than 90 vessels.

The ship has high propulsion efficiency and energy saving and is pro-



vided with the Surf-Bulb (Rudder fin with bulb) after the propeller and SSD (Super Stream Duct) in front of the propeller.

### Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 225m x 222m x 32.26m x 20m x 14.38m  
DWT/GT: 80,591t/42,711

Cargo hold capacity: 95,980m<sup>3</sup>  
Main engine: MAN B&W 7S50MC-C diesel x 1 unit  
Sea speed: 14.6kt  
Complement: 25  
Classification: NK  
Completion: February 17, 2012

## JSEA participates in Posidonia 2012

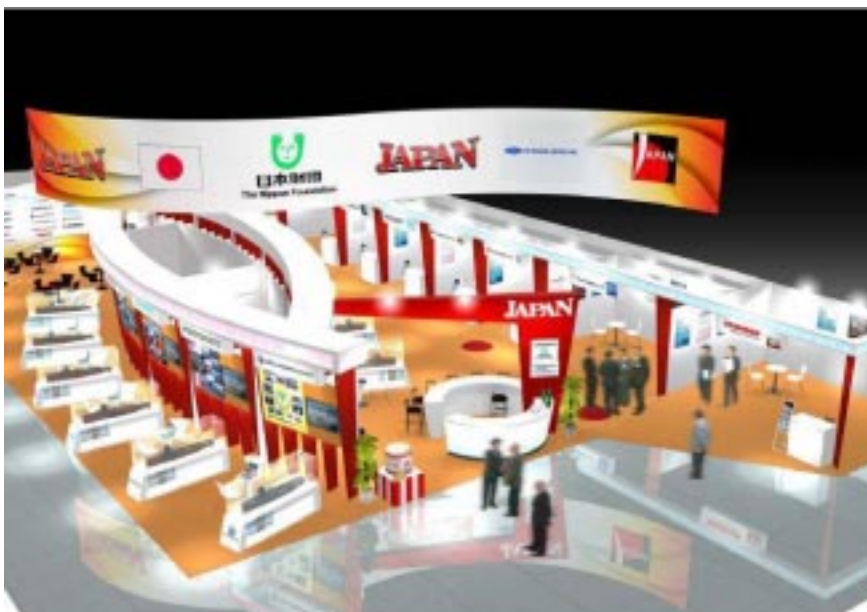
The 23rd Posidonia 2012 (The International Shipping Exhibition) will take place at the Metropolitan Expo Centre in Athens for five days from June 4 through 8. This event is organized by the Posidonia Exhibitions SA and sponsored by the Greek Ministry of Mercantile Marine, Union of Greek Shipowners, etc., and organizations related to the maritime industry. The

Japan Ship Exporters' Association (JSEA) consisting of 12 Japanese shipbuilders will participate in the exhibition with the financial support of The Nippon Foundation and in cooperation with The Shipbuilders' Association of Japan. JSEA will use a 243.60m<sup>2</sup> exhibition area where Japanese shipbuilding technology will be presented. Particular ship hull forms

and newly developed ship designs will be introduced with the liquid crystal display (LCD) system.

### Shipbuilders:

IHI Marine United Inc.  
Imabari Shipbuilding Co., Ltd.  
Kawasaki Heavy Industries, Ltd.  
Mitsubishi Heavy Industries, Ltd.  
Mitsui Engineering & Shipbuilding Co., Ltd.  
Namura Shipbuilding Co., Ltd.  
Oshima Shipbuilding Co., Ltd.  
Sanoyas Shipbuilding Corporation  
Sasebo Heavy Industries Co., Ltd.  
Shin Kurushima Dockyard Co., Ltd.  
Sumitomo Heavy Industries Marine & Engineering Co., Ltd.  
Universal Shipbuilding Corporation



### Correction

In the last issue of this news letter, the correct figures of carrying capacity of the container carrier HANJIN DALIAN on Page 5 is 2,535. The figures 3,535 on the seventh line of the first column is incorrect.

**GLOBAL HEART**

Owner: Global Odyssey S.A.  
 Builder: The Hakodate Dock Co., Ltd.  
 Hull No.: 846  
 Ship Type: Bulk Carrier  
 L(o.a.) x B x D x d: 178.41m x 29.40m  
 x 13.90m x 9.77m  
 DWT/GT: 32,964t/20,254  
 Main engine: Mitsubishi 6UEC45LSE  
 diesel x 1 unit  
 Speed, service: 14.3kt  
 Classification: NK  
 Complement: 24  
 Completion: January.13, 2012

**HONOLULU BRIDGE**

Owner: Cherry Ship Holding S.A.  
 Builder: IHI Marine United Inc.  
 Hull No.: 3286  
 Ship type: Container carrier  
 L (o.a.) x B x D: 334.55m x 45.6m x  
 24.4m  
 DWT/GT: abt. 97,000t/97,000  
 Loading capacity: 8,600TEUs  
 Main engine: MAN B&W 9K98ME  
 Mark VI diesel x 1 unit  
 MCR: 51,480kW x 94.0rpm  
 Speed, service: 22.7kt  
 Classification: NK  
 Completion: January 25, 2012

**LBC NATURE**

Owner: Sun Olive Line Corporation  
 Builder: Oshima Shipbuilding Co.,  
 Ltd.  
 Hull No.: 10620  
 Ship type: Bulk carrier  
 L (o.a.) x B x D x d (ext.): 210.00m x  
 36.50m x 20.20m x 12.824m  
 DWT/GT: 71,066t/42744  
 Main engine: Mitsubishi  
 7UEC50LSII (P1 point) x 1 unit  
 Speed, service: 14.5kt  
 Registration: Marshall Island  
 Classification: NK  
 Completion: January 11, 2012

**KING COTTON**

Owner: Sun Advance Shipping S.A.  
 Builder: Shin Kurushima Dockyard  
 Co., Ltd.  
 Hull No.: S-5686  
 Ship type: Bulk carrier  
 L (o.a.) x B x D x d (ext.): 179.99m x  
 28.20m x 14.30m x 10.101m  
 DWT/GT: 33,622t/21,205  
 Main engine: Mitsubishi 6UEC45LSE  
 diesel x 1 unit  
 Speed, service: 14.3kt  
 Registration: Panama  
 Classification: NK  
 Completion: October 28, 2011

**KING ISLAND**

Owner: Ocean Friend Corp. Limited  
 Builder: Kanda Shipbuilding Co., Ltd.  
 Hull No.: 524  
 Ship type: Open hatch cargo ship  
 L (o.a.) x B x D x d (ext.): 177.00 x  
 28.60 x 14.35 x 10.034  
 DWT/GT: 33,152t/21,483  
 Main engine: Mitsubishi 6UEC45LSE  
 diesel x 1 unit  
 Speed, service: 14.15kt  
 Registration: Hong Kong  
 Classification: NK  
 Completion: December 9, 2011

**SANKO FRONTIER**

Owner: FRONTIER BULKSHIP  
 LIMITED  
 Builder: Sasebo Heavy Industries Co.,  
 Ltd.  
 Hull No.: S795  
 Ship type: Bulk carrier  
 L (o.a.) x B x D x d (ext.): 225.00 x  
 32.20 x 19.80 x 14.136  
 DWT/GT: 74,962t/40,325  
 Main engine: Mitsui MAN B&W  
 7S50MC-C diesel x 1 unit  
 Speed, service: 14.5 knots  
 Registration: Liberia  
 Classification: ABS  
 Completion: November 18, 2011

