



MHI and Imabari Shipbuilding to establish JV for designing and marketing LNG carriers

Move taken to accommodate large-scale projects as way of winning solid place in expanding international market

Mitsubishi Heavy Industries, Ltd. (MHI) and Imabari Shipbuilding Co., Ltd. of Imabari, Ehime Prefecture, jointly established MI LNG Company, Limited, a company to handle the design and marketing of LNG (liquefied natural gas) carriers on April 1, 2013.

Through establishment of the JV, the two companies aim to proactively prepare a structure capable of responding to large-scale LNG carrier construction projects, which are expected to increase in tandem with expanding global demand for LNG. By combining MHI's technology development capabilities and Imabari Shipbuilding's cost competitiveness, supported further by the effective management of their respective shipyards, the two companies look to win a solid place in the growing international LNG carrier market.

The JV, which will have its head office in Minato-ku, Tokyo, will be capitalized at 50 million yen. MHI will own 51% of equity and Imabari Shipbuilding will hold the remaining 49%. Upon receiving an order for an LNG carrier, the JV will prepare the specifications, etc., and then order ship construction either to MHI's Nagasaki Shipyard & Machinery Works or to Imabari Shipbuilding.



"Sayaendo" a new-generation LNG carrier

Profile of the New Company

Company name:	MI LNG Company, Limited
Business scope:	Businesses related to design and marketing of LNG carriers
Head office:	4-5-1, Shimbashi, Minato-ku, Tokyo
President:	Haruhiko Omi
Capital:	50 million yen
Operation launch:	April 8, 2013



Imabari's first LNG carrier TRINITY ARROW

With shipyards of two companies at its disposal, the JV will be able to secure collective shipbuilding capacity of more than eight LNG carriers per year. This will enable the JV to take orders for multiple LNG carriers, putting it in a position to vie against Korean and other large shipbuilders.

Regarding LNG carrier types, besides the conventional Moss type with spherical LNG tanks and the membrane type, the JV can also offer the "Sayaendo," a new-generation LNG carrier* developed by MHI as a high value-added vessel evolved from Moss-type carriers but achieving enhancements in energy savings and operability.

MHI is a pioneer in Japan's LNG carrier industry, having engaged in their development and construction since the 1970's. To date the company has delivered 42 ships.

(Continued on Page 2)



For further information please contact:

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

JAPAN SHIP EXPORTERS' ASSOCIATION

15-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 Tel: (03) 62061661 Fax: (03) 3597-7800 E-Mail: postmaster@jsea.or.jp

(Continued from Page 1)

Imabari Shipbuilding, Japan's largest shipbuilder in terms of both tonnage and sales revenue, is one of major shipbuilding dedicated companies in Japan that include LNG carriers in its portfolio.

Imabari, which has 110 years of experience in shipbuilding, concluded a license agreement with GTT in the year 2000, developed new vessel design with membrane-tank method Mark-III system, and in 2008, constructed 1st 154,000m³ LNG carrier, largest at the time in the world. By adopting trapezoidal tank for the first time as Mark-III system, the vessel has increased tank capacity with slim-lined hull shape, which gave higher competitiveness to the vessel.

The company has been continuously deploying the marketing, investigation on new technology such as ME-GI engine and Mark-III Flex system, study on new Panama Canal and varied trade pattern of LNG. Nowadays, Imabari is developing new design of 178,000m³ LNG carrier with

ME-GI system.

Last year, in May MHI agreed with Imabari Shipbuilding to collaborate in container carrier technology, and in July to license manufacture and marketing rights of deck machinery. In October, the two companies jointly received an order for two highly energy-efficient, next-generation pure car and truck carriers from Nippon Yusen Kabushiki Kaisha (NYK Line). This increasingly close relationship between MHI and Imabari Shipbuilding resulted in the latest collaboration agreement.

Owing to the suspended operation of nuclear power plants in Japan in the wake of the Great East Japan Earthquake, demand for LNG as a fuel for power generation has been expanding not only in Japan but also globally. In addition, as a direct outgrowth of the "shale gas revolution" in the U.S., the share of North American LNG in the global market is expected to increase, resulting in a trend toward longer transport distances. With volume growing and transport

distances lengthening, the number of LNG carriers required is expected to increase. As a result, in order for industry players to attract orders, their shipyards must be structurally prepared to accommodate construction of multiple carriers within in a short period.

Going forward MHI and Imabari Shipbuilding will explore demand for LNG carriers widely as they look to gain an edge in this increasingly competitive market.

***Note:** The "Sayaendo" has a peapod-shaped continuous cover over spherical LNG tanks, which is integrated with the ship's hull. This innovative design enables a more efficient overall ship structure and reductions in ship weight and size. MHI has now completed the new vessel's development and received orders for five units. The first ship is currently under construction.

JMU completes 8,600TEU container vessel, HANOI BRIDGE

Japan Marine United Corporation has delivered the 8,600TEU container vessel, HANOI BRIDGE (Hull No. 3290), at its Kure Shipyard. The HANOI BRIDGE is a large container vessel, and JMU devoted its sophisticated shipbuilding technology and experience to this vessel.

For the sake of economical operation on container trades, the electronically controlled main engine is installed on this vessel. Moreover, the latest systems are applied to achieve more optimum operation, which include the turbo charger cut-off system and inverter-controlled cooling sea water pump. These systems contribute to saving fuel oil consumption and reducing exhaust gas emissions.

JMU has designed this vessel with the latest technology such as CFD analysis, 3D-FEM ship-model analysis, walk-through simulation, and equipment installation simulation

utilizing the CIM system Ajisai which JMU developed.

Principal particulars
L (o.a) x B x D: about 334.55m x
45.60m x 24.40 m
DWT/GT: about 97,000 t/97,000

Loading capacity: 8,600 TEUs
Main engine: MAN B&W 9K98ME
Mark VI diesel x 1 unit
MCR: 51,480 kW x 94.0 rpm
Classification: NK
Completion: March 28, 2013



Kawasaki completes 58,635DWT bulker, GLOBAL VENUS

Kawasaki Heavy Industries, Ltd. completed construction of the 58,635DWT bulk carrier, GLOBAL VENUS (HN: 1700), for the delivery to Global Paradise S.A. on March 29, 2013. This bulk carrier is the 27th delivery of the 58,000DWT series developed by Kawasaki.

The bulk carrier is the flush deck type with a forecastle and has five cargo holds capable of loading grains, coal, ore, steel products, etc. Four deck cranes are installed between the hatch covers on the ship centerline, which facilitates cargo-handling at ports insufficient for cargo-handling facilities on land.

The vessel can achieve maximum fuel saving with the latest technologies, including an energy-saving main diesel engine, highly efficient propellers, the Kawasaki rudder bulb system with fins (RBS-F), as well as a

smooth bow shape designed to reduce wave resistance, which all contribute to the vessel's enhanced propulsion performance.

The main engine and generator engine comply with the Tier II NO_x emission standards set by the International Convention for the Prevention of Pollution from Ships.

Principal particulars
L (o.a.) x L (b.p.) x B x D x d: 197.00m x 194.00m x 32.26m x 18.10m x 12.65m
DWT/GT: 58,635t/33,126
Caro hold capacity: 73,614 m³



Main engine: Kawasaki-MAN B&W 6S50MC-C7 diesel x 1 unit
MCR: 8,630 kW x 116 rpm
Speed, service: about 14.5 kt
Complement: 24
Classification: NK
Registry: Vanuatu

Sanoyas completes 4,300,000cf wood chip carrier, DRAGON SKY

The wood chip carrier DRAGON SKY built at the Sanoyas Mizushima Shipyard was delivered to Ocean Woodland Shipping Co., Ltd. on February 26, 2013.

This vessel is the Sanoyas developed 4.30 million cubic feet (approximately 121,000m³) type wood chip carrier with wide beam and shallow draft, with one of the largest cargo hold capacities in the world. This vessel is the first to apply the fuel oil tank protection regulation and Performance Standard for Protective Coatings (PSPC) of the International Maritime Organization.

The vessel is the flush deck type with the aft engine room and accommodation house. The cargo space is divided into six holds, the structures of which are designed and arranged for efficient loading and unloading of wood chips. This type of vessel has greater depth than the conventional bulk carrier of the same deadweight class due to its design to carry low-density bulk cargoes like wood chips.

For improvement of propulsion efficiency, the vessel is equipped with a low-speed and long-stroke main engine combined with a high-efficiency propeller. Moreover, the Sanoyas energy saving device STF (Sanoyas-Tandem-Fin, max. 6% energy saving) is installed on the stern shell. This contributes to the reduction of CO₂ emissions.

A 975t/h chip

unloader, three deck cranes, and four hoppers are installed between the cargo hatches. The main belt conveyor is laid fore-and-aft over the main deck, and a shuttle conveyor is equipped on the bow to unload wood chip from the ship to a shore facility. Cargo handling equipments are designed for quick and safe unloading work. Cargo hatch covers are the folding type driven by the electro-hydraulic system.

Principal particulars
Hull No.: 1311
L (o.a.) x L (b.p.) x B x D x d: 209.99 m x 204.00 m x 37.00 m x 22.85 m x 11.929 m
DWT/GT: 63,415 mt/49,718 mt
Cargo hold capacity: 121,605 m³ (4,294,466 ft³) (grain)
Main engine: MAN B&W 6S50MC-C7 diesel x 1 unit
MCR: 9,480 kW
Speed, service: about 14.6 kt (at c.s.o. with 15% sea margin)
Complement: 28
Classification: NK
Delivery: February 26, 2013
Registry: Panama



NAMURA completes 251,028DWT ore carrier, BSTEEL HARMONY

Namura Shipbuilding Co., Ltd. delivered the BSTEEL HARMONY, a 251,028 DWT ore carrier, to Star Bulk Carrier Co. S.A. at its Imari Shipyard & Works on February 26, 2013.

This is the ninth vessel of 250,000 DWT type ore carriers called WOZMAX. 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. To call at Ponta da Madeira in Brazil, the vessel has a suitable arrangement for mooring.

The main engine of the vessel is the MAN B&W 7S80MC-C (Mark 7) type, driving a single fixed pitch propeller. For fuel-economy operation, the Namura flow Control Fin (NCF) developed by Namura and a high-efficiency propeller are adopted for improved propulsion performance. Machinery in the engine room is automated on the basis of the NK M0 concept. In the cooling system of the ma-



chinery part, the central fresh water cooling system is used for easy maintenance. Moreover, the vessel has large capacity of water ballast pumps for quick operation during cargo loading. IMO PSPC-WBT is adopted for corrosion protection of water ballast tanks to increase safety of the vessel. The vessel complies with the requirements of the latest amendments of the international regulations at the construction stage.

Principal particulars

L (o.a.) x B (mld) x D (mld) x d (mld):	329.95 m x 57.00 m x 25.10 m x 18.00 m
DWT/GT:	251,028 t / 132,589 t
Main engine:	MAN B&W 7S80MC-C (Mark 7) diesel x 1set
Speed, service:	about 15.0 kt
Complement:	25
Classification:	NK
Registry:	Liberia

Demonstration event of electronically controlled gas-injection diesel engine (ME-GI) for marine use

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) in cooperation with Mitsui OSK Lines has recently carried out a full-scale demonstrational running of electronically controlled slow-speed diesel engine for marine use burning natural gas. This is the first of its kind in Japan and is called "ME-GI," and has confirmed that the engine has the same reliability with the oil-fired diesel engines used for almost all ocean going merchant ships

in the world.

This demonstration was carried out on the electronically controlled ME-GI of which fuel system was converted to gas burning system from conventional oil burning system temporarily. Heavy fuel oil is the most popular for marine diesel engine. However, natural gas is drawing attentions as a fuel of marine engines in near future in view of not only low emissions but also procumbent cost, which could become lower by a recent development of shale gas.

MES completed its power generation plant with slow-speed gas injection diesel engine (GIDE) in its Chiba Works in 1994. Through this operation, MES has carried out various reliability assessments and accumulated its various operation expertise of

such engine.

ME-GI, based upon such operational experiences, is a fusion of state-of-the art technologies such as electronic control technology and emission reduction technology. MES exerts its utmost efforts for further adoption of ME-GI to many commercial ships starting with LNG carrier.

In July last year, LNG carrier "Double Eco MAX" with ME-GI propulsion and with decreased fuel cost and CO₂ emission by 30% was developed by MES and put into market.

Through the demonstrational operation, MES has established not only a comprehensive control system of ME-GI including gas supply system but also the supply system of ME-GI to the customers.

MES will also establish a sales system to offer to customers ships with ME-GI propulsion system, which are economical and environmentally friendly as well.



New JSEA President appointed

The 106th Annual General Meeting of the Japan Ship Exporters' Association (JSEA) selected 30 directors and 2 auditors in Tokyo on May 24, 2013. Subsequently, the 584th Directors' Meeting selected Mr. Kazuaki Kama, Chairman of the Board, IHI Corporation, as the new JSEA President. Mr. Kama's tenure will last the usual two years. Mr. Kama will complete a two-year term as Chairman of the Shipbuilders' Association of Japan (SAJ) on June 18, 2013, having held the position since 2011.

At the same meeting, four Executive Vice Presidents of the JSEA were appointed: Mr. Kazuo Ohmori, Chairman of the Board, Sumitomo Corporation (reappointment); Mr. Shigemi Kurahara, Chairman of the board, Japan Marine United (reappointment); Mr. Toshihiko Kita, Managing



New JSEA President Kama,

Executive Officer and President, Machinery Division, Sojitz Corporation (reappointment); and Mr. Yukito Higaki, President, Imabari Shipbuilding Co., Ltd. (new appointment). Standing officers of JSEA include Mr. Satoshi Ito, Senior Managing Director (reappointment) and Mr. Hidetsugu Ueki, Director and Secretary General (new appointment).

Naikai completes 38,300DWT cargo ship ECO SPLENDOR

Naikai Zosen Corporation completed construction of the 38,302DWT general cargo ship, ECO SPLENDOR, at the Innoshima Shipyard on May 20, 2013. This general cargo ship has been designed with double-side shells for every cargo holds for better safety in ship operation.

Should external damage occur, the inner shell of the vessel can prevent loss or outflow of cargoes and ensure the quality of cargoes. The double side shells complying with the international regulations also protect the fuel oil tanks for environmental conservation.

Thus, stronger structural performance and better stability are ensured against external damage than the conventional cargo ship.

The adoption of broad beam and shallow draught allows the vessel to enter shallow ports and navigating rivers, channels, and lakes. An adequate rudder area gives course-keeping stability to the vessel despite the broad beam.

The vessel has a versatile cargo-

loading capacity for grains, coal, ore, steel products, and lumbars, etc. Of the total five cargo holds, the Nos. 2 through 4 holds are the box-shaped type. Four 30t deck cranes and wide hatch openings facilitate handling of particularly lengthy cargoes.

The vessel is an eco-ship that uses an economical low-speed main engine combined with a large-diameter propeller. The Super Stream Duct (SSD) and Surf-Bulb (Rudder Fin with Bulb) are installed for increased fuel efficiency. The Ax-Bow design also improves sea-keeping performance of the ship.



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): 15-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 / Tel: +81-3-6206-1661 Fax: +81-3-3597-7800
E-mail: postmaster@jsea.or.jp
- Address (London): Japan Ship Centre (JETRO), MidCity Place, 71 High Holborn, London WC1V6AL, UK / Tel: +44-20 7421-8340 / Fax: +44-20 7421-0009
E-mail: Singo_Tomomatsu@jetro.go.jp
Portalsite: maritimejapan.com

Principal particulars

L (o.a.) x L (b.p.) x B x D x d:	183.00m x 177.00m x 30.60m x 14.50m x 10.00m
DWT/GT:	38,302t/23,749
Cargo hold capacity:	47,125.3m ³ (grain)
Main engine:	Hitachi-MAN B&W 6S46MC-C8 diesel x 1 unit
DCSO:	5,760 kW x 107.0min ⁻¹
Speed, service:	about 14.1kt
Complement:	25
Classification:	NK
Registry:	Hong Kong
Completion:	May 20, 2013

ISLAND SPIRIT

Owner: Global Quartz S.A.
 Builder: The Hakodate Dock Co., Ltd.
 Hull No.: 857
 Ship type: Bulk carrier
 L (o.a.) x B x D x d: 175.53m x 29.40m x 13.70m x 9.64m
 DWT/GT: 31,864t/19,801
 Main engine: Mitsubishi 6UEC45LSE diesel x 1 unit
 Speed, service: 14.4kt
 Classification: NK
 Complements: 24
 Completion: January 29, 2013

**HORAISAN**

Owner: Exceed Shipping S.A.
 Builder: Mitsubishi Heavy Industries, Ltd. (Nagasaki Shipyard & Machinery Works)
 Hull No.: S.2282
 Ship type: VLCC
 L (b.p.) x B x D x d: 324.00m x 60.00m x 29.10m x 20.8m
 DWT/GT: 305,301t/160,057
 Main engine: Mitsubishi-UE 7UEC85LS II diesel x 1 unit
 Speed, service: 15.5kt
 Classification: NK
 Completion: January 11, 2013
 Registry: Panama

**FEDERAL TIBER**

Owner: Baffin Investments Limited
 Builder: Oshima Shipbuilding Co., Ltd.
 Hull No.: 10695
 Ship type: Bulk carrier
 L (o.a.) x B x D x d (ext.): 189.99m x 32.26m x 17.87m x 12.578m
 DWT/GT: 55,337t/31,590
 Main engine: Kawasaki MAN B&W 6S50MC-C8 diesel x 1 unit
 Speed, service: 14.30kt
 Registry: Marshall Island
 Classification: DNV
 Completion: January 9, 2013

**NORDLOTUS**

Owner: Nordlotus Navigation Company Limited
 Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
 Hull No.: 1376
 Ship type: Tanker
 L (o.a.) x B x D: 228.60m x 42.00m x 21.50m
 DWT/GT: 105,000t/57,000
 Main engine: Mitsui MAN B&W 6S60MC-C diesel x 1 unit
 Speed, service: About 15.3kt
 Classification: LR
 Completion: March 4, 2013

**GLORIOUS FUJI**

Owner: Kashima Naviera S.A.
 Builder: Imabari Shipbuilding Co., Ltd.
 Ship type: Bulk carrier
 L (o.a.) x B x D: 179.97m x 29.80m x 15.0m
 DWT/GT: 23,259t/38,180
 Main engine: B&W 6S46MC-C (Mark7) diesel x 1 unit
 Speed, service: 14.5kt
 Classification: NK
 Completion: January 15, 2013

**NEW EXPEDITION**

Owner: Salute Maritime S.A.
 Builder: Mitsui Engineering & Shipbuilding Co., Ltd.
 Ship type: Bulk carrier
 Hull No.: 1825
 L (o.a.) x L (b.p.) x B x D: 292.00m x 282.00m x 44.98m x 24.70m
 DWT/GT: 176,387t/92,382
 Main engine: Mitsui MAN B&W 6S70MC-C diesel x 1 unit
 MCR: 18,660kW x 91rpm
 Speed, service: 15.5kt
 Complement: 27
 Classification: NK
 Registry: Panama

