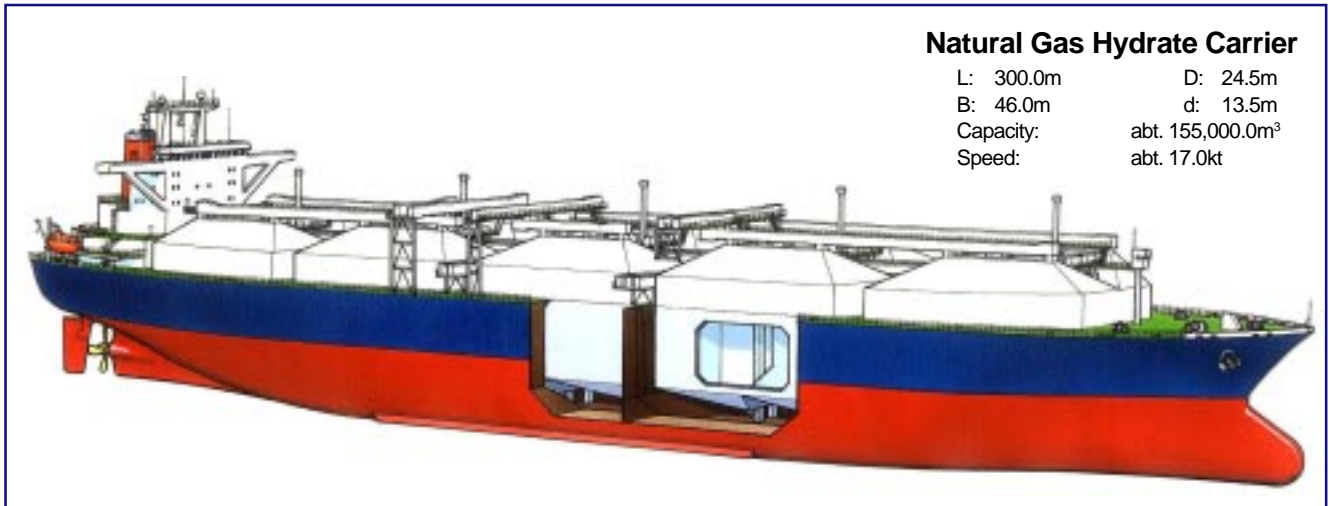


Natural gas hydrate (NGH) carrier imaged for next-generation energy



Natural Gas Hydrate Carrier

L: 300.0m	D: 24.5m
B: 46.0m	d: 13.5m
Capacity: abt. 155,000.0m ³	
Speed: abt. 17.0kt	

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has paid great attention from the early stages to the usefulness of natural gas hydrate (NGH), and has now tackled the establishment of the NGH industrialization chain including production, transportation, storage and re-gasification, because of the increasing demand for environment-friendly clean energy emitting less CO₂ and the continuing process of global warming.

MES is now developing an NGH carrier, which will constitute the most important part of the NGH transport chain, jointly with National Maritime Research Institute and Osaka University with the support of the Corporation for Advanced Transport & Technology.

The development includes the three following technologies. NGH is pelletized for transport which increases the

NGH production test plant (below)



Burning NGH pellet and pellet produced by the prototype plant (above)

self-preservation effect and decreases boil-off gas (BOG), eventually enhancing the contained gas in the cargo and greatly improves the cargo handling efficiency.

Study of the loading and unloading of NGH pellets to and from the carrier envisages the use of a mechanical conveyor system. Loading of the NGH pellet to the cargo hold is made by a horizontal conveyor, and unloading from the cargo hold is made by a vertical conveyor onto a horizontal conveyor on the deck for the shore transport.

(Continued on page 2)



For further information please contact:

JAPAN SHIP EXPORTERS' ASSOCIATION

15-16, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 Tel: (03) 3508-9661 Fax: (03) 3508-2058 E-Mail: postmaster@jsea.or.jp

Universal delivers 200,000DWT type bulk carrier

Universal Shipbuilding Corporation has delivered the first 200,000DWT type bulk carrier (Newcastle Maxim), *Shin Kenryu* (HN: 218), to its owner Erica Navigation S. A. of Panama at the Tsu Shipyard.

The ship was designed to be accommodated in the main loading and unloading ports in the world, as one of largest vessels of this type, although

the capacity of the cargo volume is more than 200,000DWT.

Economic efficiency is one of the focuses of the design development of the ship. In order to achieve economic efficiency, the ship has a large cargo hold capacity (=approx. 217,700m³) and DWT (=approx. 202,500t) at scantling draft of 17.88m.

Another feature of the ship is the shallow design draft (=16.10m) ensur-

ing access to the ports in the Seto Inland Sea with large deadweight (=178,000t), where many steel mills are located.

Furthermore, the bulk carrier is equipped with Ax-Bow, the technology developed by Universal (ex-NKK) in 1996, which won The Ship of the Year 2001 Award for the Dunkirk Max. Ax-Bow allows 20 to 30% reduction in the sea margin compared with the conventional bow design as introduced in Sea Japan No. 293.

Principal Particulars:

L (o.a.) x L (b.p.) x B x D: 299.95m x 290.00m x 50.00m x 24.10m

Draft (Design): 16.10m

Draft (Scant.): 17.88m

Deadweight (Design): 178,963ton

Deadweight (Scant.): 203,508ton

Gross Tonnage: 101,953ton

Service Speed: 14.5knots

Main Engine: MES MAN B&W 6S70MC Mark VI

Output: 16,020kW x 91min⁻¹

Classification: NK



Hakodate Dock completes bulk carrier *Azurite Ocean*

The Hakodate Dock Co., Ltd. delivered the 14th ship of a 32,000 dwt bulk carrier series, *Azurite Ocean* (HN: 790), to Star Bulk Carrier Co., S.A. (Panama) in November, 2002 and the ship was put in service for carrying the main cargo of nickel ore.

The ship was specially designed with an especially shallow draft in comparison with other ships, but retaining a similar cargo loading capacity. Based on this design, the ship can call at more ports and increase opportunities for profitable ship operation.

The five cargo holds consist of Nos. 1 & 5 holds with topside and lower hopper tanks and Nos. 2, 3 & 4 holds with double hull construction including double bottom and topside tanks, which makes cargo handling easier. Furthermore, the ship is strengthened for heavy cargoes (Nos. 2 & 4 holds

may be empty) such as nickel ore.

Principal particulars

L (o.a.) x L (p.p.) x B x D x d (ext.):
176.85m x 168.00m x 29.40m x
13.50m x 9.562m.

DWT/GT: 32,178t/19,762t

Main engine: Mitsubishi 6UEC52LA diesel engine

Output: 6,620 kW (9,000 PS) x 130rpm

Complement: 24

Classification: NK



(Continued from page 1)

NGH pellet is not presently recognized as a ship cargo, and is waiting for international standardization. As shown in the conceptual image, an independent tank system is envisaged for the NGH carrier.

IHIMU delivers Panamax container carrier

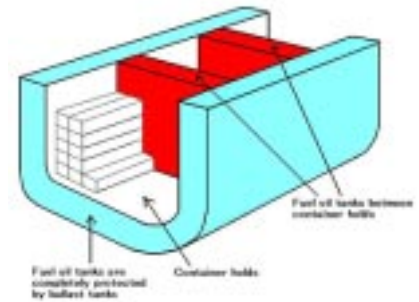
IHI Marine United Inc. delivered the *MOL Encore* (HN: 3163), a 4,500TEU Panamax container carrier, to Lunar River Line S.A. of Panama on March 25, 2003.

The *MOL Encore* is the first of a series of four 4,500 TEU Panamax container carriers chartered by Mitsui O.S.K. Lines, Ltd. and the ships are scheduled to enter the Asia- North

America route.

This series of 4,500TEU Panamax container carriers has been newly designed adopting an environmental friendly technology developed together with Mitsui O.S.K. Lines, Ltd.

Conventional container carriers store their fuel mainly in the double bottom tanks formed between the outer hull plate and tank top plate in the cargo holds, but this series of ships applies environmentally friendly technology with the new arrangement of fuel oil tanks located in spaces between the



bulkheads of cargo holds in order to significantly reduce risks of oil spills in emergencies such as collision and grounding.

Applying this new fuel oil tank arrangement, 60% of the total fuel capacity of the ship, approx 4,200t fuel, enough for a 10,000-mile voyage, is shifted from the double bottom tanks to the spaces between bulkheads.

Principal Particulars

L (o.a.) x L (b.p.) x B x D x d (extreme/summer): 294.130m x 282.00m x 32.26m x 19.03m x 13.54m

DWT/GT: 61,441t/53,096t

Speed, service: 24.5kt

Main engine: DU-Sulzer 9RTA96C diesel x 1 unit

MCR: 49,410kW at 100.0rpm

NOR: 42,000kW at 94.7rpm

Classification: NK

Kypros

Hull No.: 1203

L (o.a.) x L (b.p.) x B x D x d: 189.90m x 183.00m x 32.26m x 17.20m x 12.235m

DWT/GT: 55,222mt/31,169

Cargo capacity: 69,428m³ (grain)

Classification: LRS

Complement: 25

Speed, service: abt. 14.7kt

Main engine: MAN B&W 6S50MC-C diesel x 1 unit

MCR: 12,870ps

Completion: Feb. 28, 2003



Sanoyas delivers two Handymax bulkers

—*Nissos Kypros and Nissos Hios*—

Sanoyas Hishino Meisho Corp. has completed two 55,000DWT Handymax bulk carriers, *Nissos Kypros* and *Nissos Hios*, delivered to Tramontana Shipping Company Ltd. and Pountes Shipping Company Ltd., respectively. The vessels employ a newly developed hull form for the largest capacity as a Handymax bulk carrier.

The hull has the maximum beam of 32.26m allowed for the passage of the Panama Canal. Cargo capacity in both dwt and volume is larger than the conventional Handymax, and propulsion efficiency and fuel consumption are improved as well.

Five cargo holds are arranged in the centerline, and the bridge, engine room, and accommodation quarters are located aft. The cargo holds are the topside tank and hopper bottom type for efficiently loading bulk car-

goes such as coal, iron ore, and grain. All hatches measure over 20m in length for loading lengthy cargoes like steel pipes. CO₂ fire extinguishing systems and mechanical ventilators are provided to cope with dangerous cargoes. The reinforced double bottom permits loading of heavy cargoes such as hot coils and other steel products.

Cargo handling equipment consists of four 35t deck cranes and four grab buckets for efficient cargo handling. Hatch covers are the end-folding type driven by the electro-hydraulic system. The main engine uses a slow-speed, super-long stroke, and 2-cycle diesel engine suitable for turning a large diameter propeller. The Sanoyas Tandem Fin (STF) is adopted for the stern to improve propulsion. The combination reduces fuel consumption. The vessels have acquired the LRS UMS notation for unmanned engine operation.

Principal particulars of *Nissos*

Correction

In the last issue of SEA-Japan, No.297, the ship name on page 3, *Coral Islander*, should read *Coral Islander II*. We are sorry for this error.



Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has completed the 56,000DWT type bulk carrier *Nordhval* (HN: 1565) at its Tamano Works for D/S Norden A/S of Denmark. The vessel is the first of a series of newly developed 56,000DWT type handymax bulkers, following

MES completes bulk carrier *Nordhval* for D/S Norden A/S

50,000DWT series.

This new series has a cargo capacity of about 70,800m³ and 56,000DWT, both larger than the previous series. The vessel is powered by a Mitsui-MAN B & W 6S50MCC type diesel engine which has lighter weight, smaller size and larger

output compared with the previous type.

The vessel has five cargo holds and four deck cranes with loading capacity of 30 tons each, and the wide hatch openings facilitate cargo handling. Grab buckets are stored at the cross decks, so that lumber can be loaded on the upper deck.

Principal Particulars

L (o.a.) x L (b.p.) x B x D x d: 189.99m x 182.00m x 32.26m x 17.90m x 12.55m

DWT/GT: 56,060t/31,260t

Main engine: Mitsui-MAN B&W 6S50MCC diesel x 1 unit

MCR: 9,480KW x 127.0rpm

Speed, service: 14.5kt

Classification: LR



Toyohashi Shipbuilding Co., Ltd. has completed the 52,587DWT bulk

carrier, *Doric Samurai* (HN: 3546), for Katuura Naviera S.A.

The vessel is a handy size bulk carrier designed to carry grain, coal, ore and steel products, and IMDG cargoes (excluding Class 5.1/Seedcake containing solvent extractions, ammonium nitrate and ammonium nitrate

Toyohashi completes 52,587DWT bulker *Doric Samurai*

fertilizers).

The carrier has five cargo holds, each consisting of

topside tanks and a double bottom with a hopper. The Nos. 1, 3, and 5 holds can load cargoes, leaving the Nos. 2 and 4 holds empty. The No. 3 hold can be allotted as a water ballast tank. The ballast of the topside tanks can be discharged outboard, or into the double bottom ballast tanks.



Hatch covers employ the hydraulic folding type, and four electro-hydraulic motor type deck cranes with a hoisting capacity of 30.5t are installed on the upper deck. Grab buckets are also provided.

The main engine is a low-speed and long-stroke Mitsui MAN-B&W 6S50MC (Mk VI) diesel featuring low fuel consumption.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 189.99m x 182.00m x 32.26m x 17.00m x 12.00m

DWT/GT: 52,587t/29,862t

Main engine: Mitsui MAN-B&W 6S50MC (Mark VI)

MCR: 7,796 kW x 116 min⁻¹ (rpm)

NOR: 6,627 kW x 110 min⁻¹ (rpm)

Speed, service: 14.5kt

Complement: 25

Classification: NK

Loading capacity: 68,258m³ (grain), 65,616m³ (bales)

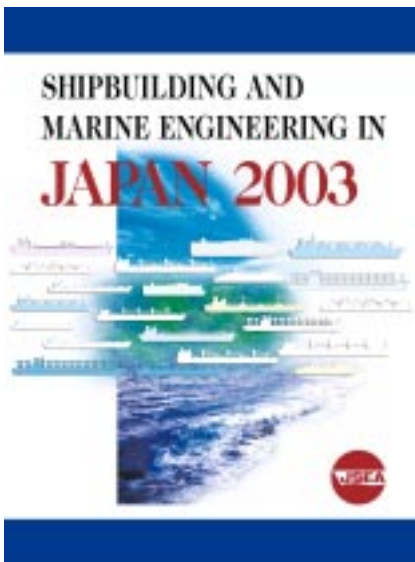
Shipbuilding and Marine Engineering in Japan

Shipbuilding and Marine Engineering in Japan 2003 has been published by the Japan Ship Exporters'

Association (JSEA) with financial support from The Nippon Foundation (Chairman: Ms. A. Sono).

The publication (210mm wide x 285mm tall, four color and 64 pages) outlines the latest shipbuilding achievements, both ships and advanced technologies. The details of ships and shipbuilding technology are compiled in a CD-ROM for readers' convenience.

Major contents include new completions, new shipbuilding technology, navigation systems, energy-saving equipment and systems, main engines, software for shipbuilding rationalization, and building and repair facilities, emphasizing technical features and R&D activities, which have been developed in the last two years.



SHI launches new company in shipbuilding operations



President
S. Nishimura

Sumitomo Heavy Industries, Ltd. (SHI) officially announced the opening on April 1, 2003 of the new consolidated subsidiary, Sumitomo Heavy Industries Marine & Engineering Co., Ltd.

The new company is a wholly owned subsidiary of SHI. SHI's entire shipbuilding and repair businesses have been transferred to this new company, apart from sales and marketing operations, which will continue to be managed by SHI.

Objectives for establishing the new company:

In the shipbuilding industry, Korea and China are expected to continue expanding their supply capabilities, intensifying price competition in this area. By spinning off SHI's shipbuilding and repair businesses, the new company aims to improve its

Sumitomo Heavy Industries Marine & Engineering Co., Ltd

technology to satisfy high-need customers' requirements and to realize flexible, speedy management.

The company will also seek to revitalize the operations by adopting a new personnel and wage system to fit its business model. Plans to boost engineering capabilities at the new company and develop ships' designs that will differentiate the company from the competition will also assist in strengthening its position in the industries.

Profile of the new company:

Company Name: Sumitomo Heavy

Industries Marine & Engineering Co., Ltd.

Description of business: R&D, sales, design, manufacturing, conversion, demolition and repairing of ships and offshore structures, plus marine engineering operations.

Establishment: April 1, 2003

President: Shinji Nishimura

Location

Head office: 5-9-11, Kita-Shinagawa, Shinagawa-ku Tokyo, Japan

Tel: +81-3-5488-8204

Fax: +81-3-5488-8178

Shipyards: Yokosuka Shipyards
19, Natsushima-cho, Yokosuka City, Kanagawa Pref., Japan

JSEA participates in NOR-SHIPPING 2003

The 19th NOR-SHIPPING 2003 (The International Shipping and Maritime Exhibition & Conference) will take place at the Lillestrom Exhibition and Congress Centre in Lillestrom four days from June 3 through 6. This event is organised by the Norges Varesmesse (Norway Trade Fairs) and sponsored by the Norwegian Shipowners' Association and organizations related to the maritime industry.

The Japan Ship Exporters' Association consisting of 10 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 and The Cooperative Association of Japan Ship-

builders, co-exhibitor, will use a 210m² exhibition area where Japanese shipbuilding technology will be presented. Particular ship hull forms and newly developed ship designs will be introduced with the plasma vision system and other displays.

Shipbuilders:

IHI Marine United Inc.

Imabari Shipbuilding Co., Ltd.

Kawasaki Shipbuilding Corporation

Mitsubishi Heavy Industries, Ltd.

Mitsui Engineering & Shipbuilding Co., Ltd.

Namura Shipbuilding Co., Ltd.

Oshima Shipbuilding Co., Ltd.

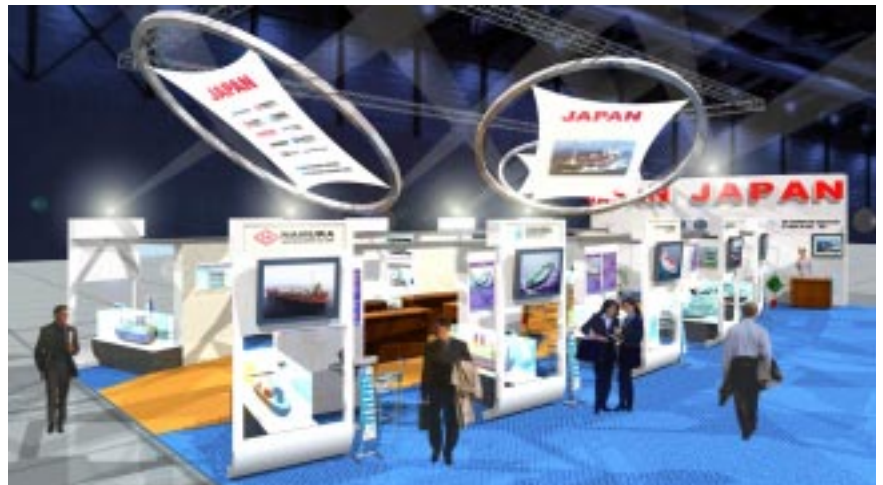
Sanoyas Hishino Meisho Corporation

Sumitomo Heavy Industries, Ltd

Universal Shipbuilding Corporation

To our readers

- Please notify us of any change in address by letter or telefax together with the old mailing label to ensure you continue to receive SEA-Japan.
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- Address (Tokyo): 15-16, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 / Tel: (03) 3508-9661 Fax: (03) 3508-2058
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E-mail: info@jsc.org.uk
URL: <http://www.jsc.org.uk>



NYK Artemis

Owner: Great River Line S.A.
Builder: IHI Marine United Inc.
Hull No.: 3156
Ship Type: Container carrier
L (o.a.) x B x D x d: 299.90m x 40.00m x 23.90m x 14.00m
DWT/GT: 81,171t/75,484t
Main Engine: DU SULZER 12RTA96C diesel x 1 unit



Container carrying capacity: 6,492TEUs
Speed, service: 25.0kt
Classification: NK
Completion: Feb 9, 2003

Cape Enterprise

Owner: Ocean Shipholding S. A.
Builder: Kawasaki Shipbuilding Corporation
Hull No.: 1516
Ship Type: Bulk carrier
L(o.a.) x L (b.p.) x B x D x d: 290.00m x 280.00m x 47.00m x 24.40m x 17.95m
DWT/GT: 185,909t/92,993t
Main Engine: Kawasaki-MAN B&W 6S70MC MkVI diesel x 1 unit
Classification: NK
Completion: Mar. 6, 2003



Lycaste Peace

Owner: Quailwood Enterprises Inc.
Builder: Mitsubishi Heavy Industries, Ltd.
Hull No.: 2178
Ship type: LPG Carrier
L (o.a.) x B x D x d: abt.230.0 m x 36.6 m x 20.8 m x 10.6 m



DWT/GT: abt.48,500t/46,021t
Cargo hold capacity: 78,000m³
Main engine: 7UEC60LS diesel x 1 unit
Speed, service: abt.16.7kt
Classification: NK
Completion: Feb. 28, 2003

Ocean Celebrity

Owner: Green Spanker Shipping S. A.
Builder: Mitsui Engineering & Shipbuilding Co., Ltd.
Hull No.: 1553
Ship Type: Bulk carrier
L(o.a.) x L (b.p.) x B x D x d: 289.00m x 279.00m x 45.00m x 24.40m x 17.95m
DWT/GT: 177,638t/88,494t



Main Engine: Mitsui-MAN B&W 6S70MC diesel x 1 unit
Speed, service: 15.0kt
Classification: NK
Completion: Jan. 17, 2003

Parat

Owner: Crusade Shipping Ltd.
Builder: The Hakodate Dock Co., Ltd.
Hull No.: 786
Ship type: Bulk carrier
L (p.p.) x B x D x d: 168.00m x



29.40m x 13.50m x 9.56m
DWT/GT: 31,829t/19,795t
Main engine: Mitsubishi 6UEC52LA diesel x 1 unit
Speed: 14.0 kt
Classification: NK
Completion: Feb. 20, 2003

Mado



Owner: Clean Gas Shipping and Trading Co. S. A.
Builder: Namura Shipbuilding Co., Ltd.
Hull No.: 231
Ship Type: LPG carrier
L(o.a.) x L (b.p.) x B x D x d: 156.03m x 148.00m x 25.00m x 16.50m x 9.770m
DWT/GT: 19,621t/16,770t
Main Engine: B&W 6S50MC (Mk VI) diesel x 1 unit
Speed, trial max.: 19.15kt
Cargo capacity: 22,779.624m³
Classification: BV
Completion: Jan 22, 2003

Belpareil



Owner: YSH Shipping Co., Ltd..
Builder: Oshima Shipbuilding Co., Ltd.
Hull No.: 10323
Ship type: Bulk carrier
L (o.a.) x B x D x d: 188.5m x 32.26m x 17.15m x 12.14m
DWT/GT: 52,960t/29,410t
Main engine: KAWASAKI B&W 6S50MC-C x 1 unit
Speed, trial max.: 14.5kt
Classification: NK
Completion: 17 Jan., 2003