



Pressure build-up type 2,500m³ LNG carrier NORTH PIONEER completed for domestic owner



Kawasaki Shipbuilding Corporation has completed construction of the pressure build-up type 2,500m³ LNG carrier, NORTH PIONEER (HN: 1571), for the co-owners, the Japan Railway Construction, Transport and Technology Agency and Japan Liquefied Gas Transport Co., Ltd. The carrier is the second ship built by the company for coastal LNG transportation in Japan.

Kawasaki built the cargo tanks that are the core facility of the carrier, and installed them on the hull, which was subcontracted to Shin Kurushima Dockyard Co., Ltd.

Kawasaki developed the NORTH PIONEER as a coastal carrier suitable for small quantities of LNG. The carrier uses the pressure build-up type LNG cargo tanks designed with Kawasaki's rich experience and technical expertise related to LNG carrier construction. The tank system has sufficient capacity to endure rising pressure due to heat ingress without releasing boil off gas. (Heat from the outside is accumulated in LNG, as a result, LNG temperature and vapor pressure rise gradually.)

The LNG cargo tanks consist of two metallic cylindrical containers, which are horizontally installed in the cargo compartments of the carrier. The heat insulation and support system separates the containers from the ship hull,

permitting contraction of the containers due to low temperature.

Cargo compartments are designed with double hull construction for the ship bottom and sides. This ensures safety in the event of collision or stranding. The compartments are also shielded with tank covers from the open air as in a large LNG carrier.

The popular small marine diesel engine is used as the main engine because there is no need for BOG treatment as on a large LNG carrier.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 89.2m x 83.0m x 15.3m x 7.2m x 4.3m

DWT/GT: 1,938t/3,056t

Cargo container capacity: 2,513 m³

Main engine: Akasaka A38S marine diesel: single-action, 4-cycle, trunk piston, non-reversible type with a turbo charger and stern clutch

Output: 2,206kW x 250rpm (MCR)

Builder: Akasaka Diesels Limited

Speed, service: 13.3kt

Complement: 15

Classification NK



For further information please contact:

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

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

MHI completes 147,835m³ Moss type LNG Carrier, ARCTIC PRINCESS

Mitsubishi Heavy Industries, Ltd. (MHI) completed construction of the ARCTIC PRINCESS (HN: 2184), a Moss type LNG carrier with a tank capacity of 147,835m³, and delivered the vessel to Joint Gas Ltd. at the Nagasaki Shipyard & Machinery Works on Jan. 13, 2006.

High propulsive performance with less vibration is achieved by the refined hull form and optimum design of propeller based on CFD and model experiments. The comfort class notation is DNV COMF-V(1)C(2). The hull structure is designed based on advanced ship structural analysis and the stringent structural design notations of DNV CSA-2, PLUS-2 were the first application to a LNG carrier. Resistance measures against cold of minus 18 degree C, for example the

enclosed type bridge wing and heating underneath the working area of mooring deck, are adopted considering operations in high latitudes. The Schilling Rudder (high lift type rudder) and a bow thruster are fitted

to improve maneuvering performance in harbor. Double side fuel oil tanks provide environmental protection and the oil pollution prevention notation is DNV OPP-F.

Principal Particulars

L (o.a.) x L (b.p.) x B x D x d: 288.0m x 274.0m x 49.0m x 26.8m x 11.5m



GT: 121,597

Cargo tank capacity: 147,835m³

Main engine: Marine steam turbine x 1 unit

Output: 27,600kW x 81rpm

Service speed: 19.5kt

Classification: DNV

MES completes world's largest class DH VLCC, YUFUSAN



double hull has been applied to both the vessel's hull and the fuel oil tank of the vessel, for which the double hull will become mandatory in the future regulations of International Maritime Organization (IMO).

Mitsui Engineering & Shipbuilding Co., Ltd. has completed construction of the 311,389DWT double hull VLCC, YUFUSAN (HN: 1601), for Infinity Shipping Navigation S. A. of Panama at the Chiba Works. YUFUSAN is the second vessel designed with the new hull form called the Mitsui Malacca Doublemax.

Both the deadweight and the cargo tank capacity are maximized for efficient transport of crude oil of typical density. In view of ocean and global environmental preservation, the

The vessel equips the MIPB-Wing (Mitsui Integrated Propeller Boss with Wing), which is a newly developed device to improve propeller propulsion efficiency. The service speed and fuel oil consumption efficiency have been improved together with both advanced bow and stern form. The main engine adopts the electronic-control lubrication system for engine cylinders to decrease ship operation costs, and the steam turbo generating system is also employed, which recovers thermal energy from the exhaust gas of the main engine.

Other installations include the fixed type flammable gas detecting system arranged in the ballast tanks and the pump room to confirm a safe working environment; GPS and differential GPS for ship positioning by satellite; electronic chart display and information system (ECDIS) and automatic ship identification system (AIS) that ensure safe navigation and ship operation; and color CCTV system in the engine room, which includes an alarm function in case of fire for monitoring from the wheelhouse and the engine control room.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 333.00m x 324.00m x 60.00m x 28.80m x 20.90m

DWT/GT: 311,389t/160,216t

Cargo tank capacity (100%): 354,689m³

Main engine: Mitsui-MAN B&W 7S80MC-C diesel x 1 unit

MCR: 27,160KW x 76rpm

Complement: 30

Classification: NK

Completion: Nov. 1, 2005

Koyo completes 6,350TEU type container carrier, MOL PARAMOUNT for Leo Ocean S. A.

Koyo Dockyard Co., Ltd. of the Imabari Group delivered the MOL PARAMOUNT, a container carrier with a container carrying capacity of 6,350TEUs to Leo Ocean S. A. on Oct. 26, 2005. The MOL PARAMOUNT is the third of seven carriers now operated by Mitsui OSK Line (MOL).

The vessel can carry 2,912TEUs in container holds and 3,438TEUs on the upper deck. The holds can stow nine tiers (including two tiers of high cube containers) in 14 rows, and the upper deck can stack seven tiers and 16 rows of containers. The container holds are designed with the box girderless type to increase container stowage space and simplify construction of the hull. Each container hold has three hatch cover panels. 18 sets of lashing bridges are provided for the containers on the upper deck. The carrier can load 1,084 units of 45ft containers and has 500 plugs for air cooling type reefer containers on the upper deck. Moreover, container holds can carry dangerous goods without restriction.

Ship maneuvering for berthing and

unberthing at a port is facilitated by two electric motor drive bow thrusters. The automatic heeling system is installed to adjust the heel of the ship during cargo handling. Fuel oil tanks are arranged below the design draft to prevent damage by a tug boat or berth fenders. The fuel oil overflow pipe is laid on the second deck passage space to avoid the overflow of oil on the upper deck. The second deck passage is arranged between Nos. 1 and 8 container holds to allow access to the bosun store, steering gear room and container holds.

Various measures are taken for economical ship operation and anti-pollution. The turbo generator assists economical navigation. The propeller boss cap fin improves propulsion efficiency. The Alfa system reduces the con-

sumption of cylinder lubricant in the main engine. An air seal type stern tube sealing device is provided for prevention of marine oil pollution.

Principal particulars

L (o. a.) x B x D x d: 293.19m x 40.00m x 24.30m x 14.00m

DWT/GT: 72,968t/71,892t

Main engine: MITSUI MAN B&W 11K98MC (MARK 6) x 1 unit

MCR: 62,920kw x 94.0rpm

Speed, service: 26.0kt

Complement: 25

Classification: NK

Flag: Panama



IHIMU completes 300,000 MTDW type VLCC, TAKASAKI

IHI Marine United Inc. has delivered the 300,000MTDW type VLCC, TAKASAKI (HN: 3215), to Violeta Maritima Lines S. A. on Dec. 26, 2005 at the Kure Shipyard. The Takasaki is the seventh of IHIMU's latest design VLCC with the maximum hull form and maximum draft to pass the Straits of Malacca, Malaysia, the so-called Malaccamax type.

The Takasaki has superior economical performance for worldwide

trade and Persian Gulf - Far East trade with its cargo load ability at shallow draft condition to pass the Straits of Malacca. The low resistant and fuel efficient proprietary hull form with IHIMU LV Fin is adopted, and the service speed is achieved by the superior hull form and seven cylinder super long-stroke diesel engine.

The reliable hull structure has been designed by advanced structural analysis technology, and the structure

and fittings of the double hull water ballast tanks have been considered for easy inspection, gas detection, inerting and ventilation. In order to meet strict environmental guide-

lines, the fuel oil tanks of the Takasaki have been designed with the double hull structure to minimize the risk of oil pollution before the new regulations of IMO become in force.

The Takasaki also has optimized arrangement of cargo tanks, ballast tanks, other compartments and economical electric power generation under seagoing conditions by a turbo generator using the exhaust gas economizer steam.

Principal Particulars;

L(o.a.) x B x D x d : 333.0m x 60.0m x 29.0m x 20.5m

DWT/GT: 300,390t/159,939t

Main Engine: DU-Sulzer 7RTA84TB x 1 unit

Output: 27,160kW at 74.0rpm

Speed, service: 15.55kt

Classification: NK

Completion: Dec. 26, 2005



Naikai Zosen delivers 45,900DWT product tanker, HIGH LIGHT



Naikai Zosen Corporation has delivered the 45,900DWT product tanker, HIGH LIGHT (HN: 693), built at its Setoda Works to Ansei Shipholding S. A.

The HIGH LIGHT has the maximum beam to pass through the Panama Canal. It is designed with double bottom and double side shells, complying with the MARPOL requirements, and can carry various products: petroleum products (light and

heavy oils), crude oil, and palm oil.

Total capacity of the cargo tanks is 54,000m³, which consist of 14 cargo tanks (including two slop tanks). The configuration facilitates simultaneous loading of four types of liquid

cargoes by allotting 25% of the total cargo capacity for each cargo. Four electric motor drive screw pumps with a capacity of 800m³/h are provided for unloading cargoes.

The HIGH LIGHT has a slender hull to achieve high speed. A high fore-castle is provided to prevent the bow from swashing and increases seaworthiness as a high-speed medium range product tanker, attaining energy saving.

Moreover, adoption of a special rudder facilitates ship maneuvering in a narrow port. Thus the ship operation efficiency has increased totally. The accommodation quarters are isolated from the engine casing to decrease noise and vibration. The crew can enjoy quiet free time in the accommodation quarters.

Principal particulars

L (o.a.) x B x D x d: 179.90m x 32.20m x 19.25m x 11.65m

DWT/GT: 46,843t/28,245t

Cargo tank capacity: 55,159.3m³ (grain)

Complement: 25

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

MCR: 9,480kW x 127min⁻¹

NCR: 8,530kW x 123min⁻¹

Speed, max. trial: 16.311kt

Speed, service: 15.7kt

Classification: NK

Completion: Oct. 25, 2005

MES achieves world record of 50 million BHP Mitsui-MAN B&W diesel engine production

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) achieved the world record output of 50 million BHP in aggregated production of MAN B&W engines in October 2005, which was marked by the Mitsui-MAN B&W 6S60MC (Mark 6) type engine built in MES Tamano Works for Onomichi Dockyard Co., Ltd. This engine was installed on the 71,000DWT crude oil carrier being built by Onomichi Dockyard Co., Ltd. for Dynacom Tankers Management Ltd.

The diesel engine production at MES has greatly increased in line with the increase of new building ships and the enlargement of the engine size required for driving larger ships. MES took only three years and three months to produce 10 million BHP after the company achieved the record of 40 million BHP in 2002. This achievement means that MES has produced diesel engines totaling 50 million BHP since the company built the first Mitsui-B&W diesel engine

(the former name of Mitsui MAN-B&W diesel engine) in 1928.

MES completed diesel engines corresponding to 3.48 million BHP on the shop test basis in fiscal 2004, and MES is expected to produce diesel engines of 3.70 million BHP in fiscal 2005 from April 2005 to March 2006, which is the largest annual record ever achieved by the company.

Record Marker Engine Specifications

Type: Mitsui-MAN B&W diesel engine 6S60MC Mark 6

Length: 8.29m

Height: 10.12m

Width: 3.48m

Cylinder bore: 600mm

Piston stroke: 2,292mm



Mean effective pressure: 1.80MPa

MCR: 12,240kW x 105rpm (16,680BHP)

Shop test: Oct. 28, 2005

History of records at MES

First Mitsui-B&W diesel engine: June 1928

10 million BHP: October 1976

20 million BHP: September 1987

30 million BHP: December 1996

40 million BHP: July 2002

50 million BHP: October 2005

MHI licenses low-speed diesel engine technology to state-owned Vietnamese shipbuilder

Mitsubishi Heavy Industries, Ltd. (MHI) signed an agreement under which it will license its UE low-speed diesel engine technology to Vietnam Shipbuilding Industry Corporation (VINASHIN). With the move MHI aims to further promote penetration of its UE engines into the Vietnamese shipbuilding industry, which is expected to grow rapidly amid the current boom in international shipping.

Under the agreement, MHI will provide VINASHIN with the licensing rights to manufacture its large diesel engines. The contract applies specifically to the Mitsubishi UEC-LA, LS, LSII and LSE engines with cylinder bores ranging from 330 to 680 mm. The licensing agreement also encompasses marketing and servicing of these engines in Vietnam. The period of licensing is from 2005 to 2014.

VINASHIN is a state-owned corporation, established in 1996, engaging in shipbuilding and production of ship-related machinery. Including more than 50 subsidiaries, VINASHIN has roughly 15,000 employees and generates annual sales of

US\$160 million (2004).

Mitsubishi UE engines are one of the world's three major brands of large marine diesel engine, along with offerings from MAN-B&W and Wartsila Sulzer. The UE models cover a wide range of power outputs from 1,520 to 63,600 PS (pferdestarke: metric horsepower).

Since the introduction of a market economy under the "Doi Moi" policy adopted in 1986, the Vietnamese economy has marked nearly steady development (the sole exception being during the Asian currency crisis of 1997). Since 2000 it has sustained

close to 7% growth every year and investments from overseas have increased robustly, as illustrated by 14.3% growth in 2004 over the previous year. With the major shipbuilding countries - Korea, Japan and China - now producing at peak lev-



At the contracting ceremony

els, the Vietnamese shipbuilding industry shows signs of rapid growth. By strengthening its relationship with VINASHIN, MHI aims to increase the share of its UE engines in the global market.



Mitsubishi UE-low-speed diesel engine

Sanoyas completes Panamax bulk carrier, KAVO ALKYON

Sanoyas Hishino Meisho Corp. has delivered the 75,409DWT Panamax bulk carrier, KAVO ALKYON (HN: 1231), to Falcon Ventures S. A. at the Mizushima Works and Shipyard of

Sanoyas.

This carrier is the 33rd of the 75,500DWT class, which has the maximized deadweight as a Panamax bulker developed by Sanoyas. Seven cargo holds are provided in the center of the hull. The cargo hold has top side tanks and hopper bottom. The upper deck is the flat type, and the engine room and the living quarters are located aft. The hatch covers are the side rolling type, and opening

and closing are achieved by chains and hydraulic drives.

The main engine is a low-speed, long-stroke, and 2-cycle diesel engine, and a large-diameter propeller is used. This combination achieves low fuel consumption.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 225.00m
x 217.00m x 32.26m x 19.30m x
13.997m

DWT/GT 75,409mt/38,845t

Cargo hold capacity: 89,250m³ (grain)

Main engine: MAN B&W 7S50MC-C
diesel x 1 unit

MCR: 12,200ps

Speed, service: abt. 14.5kt

Classification: ABS

Complement: 25

Completion: Nov. 22, 2005



OTOWASAN

Owner: Volts Shipping Navigation S. A.
Builder: Kawasaki Shipbuilding Corporation
Hull No.: 1570
Ship type: VLCC
L (o.a.) x L (b.p.) x B x D x d: 333.00m x 324.00m x 60.00m x 29.00m x 20.391m
DWT/GT: 302,477t/160,292t
Main engine: Kawasaki-MAN B&W 7S80MC-C diesel x 1 unit
MCR: 27,160kW x 76rpm
Speed, service: 15.55kt
Classification: NK
Completion: Dec. 6, 2005

GLOBAL WISDOM

Owner: Global Eagle S. A.
Builder: The Hakodate Dock Co., Ltd.
Hull No.: 804
Ship type: Bulk carrier
L (p.b.) x B x D x d: 167.00m x 29.40m x 13.70m x 9.56m
DWT/GT: 31,896t/19,789t
Main engine: Mitsubishi-6UEC52LA diesel x 1 unit
Speed, service: 14.4kt
Classification: NK
Completion: Jan. 11, 2006

CAPE SOPHIA

Owner: ISC1431 Shipping S. A.
Builder: Imabari Shipbuilding Co., Ltd.
Hull No.: 1431
Ship type: Bulk Carrier
L (o.a.) x L (b.p.) x B x D x d: 249.94m x 240.00m x 43.00m x 18.70m x 12.89m
DWT/GT: 99,047/55,285t
Main engine: KAWASAKI-MAN B&W 6S60MC (Mark 6) diesel x 1 unit
MCR: 12,240kW x 105rpm
Speed, service: 14.5kt
Classification: NK
Completion: Nov. 1, 2005

OCEANIC BREEZE

Owner: May Flower Maritime, S. A.
Builder: Namura Shipbuilding Co., Ltd.
Hull No.: 263
Ship type: Bulk carrier
L (o.a.) x L (b.p.) x B x D x d: 224.99m x 218.03m x 32.26m x 19.50m x 14.04m
DWT/GT: 77,075mt/40,689t
Main engine: B&W 6560MC (Mark 6) diesel x 1 unit
Output: 9,930 kW x 105.0rpm
Speed, trial max.: 16.50kt
Classification: NK
Completion: Nov. 29, 2005

SANKO BREEZE

Owner: South Stability Shipping Inc.
Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
Hull No.: 1314
Ship type: Tanker
L (o.a.) x L (b.p.) x B x D x d: 239.00m x 229.00m x 42.00m x 21.30m x 12.19m
DWT/GT: 105,400mt/56,500t
Main engine: Diesel United-Sulzer 6RTA58T diesel x 1 unit
MCR: 12,000kW x 103rpm
Speed, trial max.: 15.2kt
Classification: LRS
Completion: Oct. 18, 2005

PACIFIC STAR

Owner: Lepta Shipping Co., Ltd.
Builder: Universal Shipbuilding Corporation
Hull No.: 026
Ship type: Bulk carrier
L (o.a.) x B x D x d: 225.00m x 32.20m x 19.15m x 12.40m
DWT/GT: 75,250t/39,643t
Main engine: MAN B&W 6S60MC (Mk 6) diesel x 1 unit
Speed, service: 14.5kt
Classification: NK
Completion: Oct. 26, 2005