



Huge spherical LNG tank installed as an integrated unit by 1,000 ton crane for efficient construction of LNG carrier



Mitsui Engineering & Shipbuilding Co., Ltd. recently installed a spherical LNG tank as an integrated unit onto the LNG carrier under construction at its Chiba Works. A 1,000-ton capacity gantry crane was used for the installation. A spherical LNG tank weighs about 700 tons as fabricated for the 145,000m³ LNG carrier (Moss type LNG carrier).

The previous crane capacity had been limited to hoisting an incomplete tank. Therefore, the tank had to be split into three parts, namely lower part (southern hemisphere), middle part (equator) and upper part (northern hemisphere) for installation in the hull. This assembly operation had consumed about five days to complete one tank. The new gantry crane, which started operation in February 2006, allows installing one complete unit in one day. The remaining tanks will be installed in the same way.

LNG tank assembly previously carried out in the hull can be achieved on the ground, which contributes to ensuring work safety and saving preparation time. Time required for tank fixing to the hull together with other aluminum fabrication work in the ship was reduced by about 1.5 months per tank.

Owing to such enhanced performance by the new crane, including integrated installation of aluminum LNG tanks, the construction of the LNG carrier (from erection of the first block to completion of the ship) will be shortened to about 12 months.

This new gantry crane has increased the maximum loading capacity of blocks from 600 tons (300 tons x 2 units) to 1,000 tons, which reduced the number of blocks to be erected in the building dock. The decrease in number of blocks will eventually shorten the dock period and increase the building capacity of Chiba Works by more than 20%.

The LNG carrier (Hull No. 1681) now under construction was ordered in December 2004 by Ice Gas LNG Shipping (joint venture company by Mitsui-OSK, Kawasaki and Primorsk Shipping). After completion, the carrier will engage in LNG transport under the Sakhalin II Project to Japan and other areas.

The LNG carrier is about 289.50 long, about 49.00m wide; about 26.50 m deep, and about 12.30m deep in draft. The carrier has four LNG tanks, and total LNG tank capacity is about 145,000m³



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MHI completes vehicle carrier, LUNA SPIRIT, for Fair Wind Navigation

Mitsubishi Heavy Industries, Ltd. (MHI) completed LUNA SPIRIT, a vehicle carrier, for Fair Wind Navigation S. A. at the Shimonoseki Shipyard and Machinery Works on April 16, 2007.

The LUNA SPIRIT has the capacity to carry 3,930 passenger cars, including heavy vehicles such as mobile cranes, dump trucks, and bulldozers. Cargo vehicles can be rolled on and off from two shore rampways installed

at the stern and mid part of the starboard side. The arrangement enables quick and efficient loading and unloading of vehicles.

The vessel has ten car decks, including two liftable car decks which are lifted by lift-car. The liftable decks can accommodate vehicles of various sizes. The clearance between decks is 2.2m high that is adequate to accommodate high roof cars like a RV.

The main engine is the Mitsubishi

UE type with the SIP (Swirl Injection Principle) lubrication system, which helps save fuel oil and lube oil consumption. The Mitsubishi Stator Fin is employed as an energy saving device, reducing fuel oil consumption. The combined effect of these installations reduce NO_x and CO₂ emission for preservation of the clean environment.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 180.00m x 171.70m x 30.00m x 30.94m (10th Deck) x 8.20m

DWT/GT: 11,100t/43,810t

Main engine: Mitsubishi-UE 8UEC50LSII x 1 unit

MCR: 11,560 kW x 127min⁻¹

NOR: 9,826 kW x 120min⁻¹

Speed, service: 19.9kt

Vehicle carrying capacity: 3,930 passenger cars (RT type)

Complement: 24

Classification: NK, NS* (Vehicles Carrier) MNS* (MO)

Completion: April 16, 2007



Oshima completes 89,999DWT coal carrier, SHIN SANYO MARU

Oshima Shipbuilding Co., Ltd. (OSY) delivered the 89,999DWT coal carrier, SHIN SANYO MARU, to Antlers Maritima S. A. in February 2007. OSY has built several types of double side construction coal carriers in succession with combined features of AA, Bigger Deadweight at Shallow Draft; BB, Less Fuel Oil Consumption; CC, Cargo Handling Efficiency; and DD, Ship Safety Improvement.

The SHIN SANYO MARU is one of the series of double side coal carriers and is designed to have a suitable size for the anticipated Panama Canal expansion. The vessel has large deadweight tonnage (91,439 tons), large cargo capacity (108,929m³), and shallow draft (12.90m).

The vessel has five cargo holds with wide inner bottom area, and five wide (21.00m) and long opening cargo hatches. The double side construction ensures easy cargo handling and hold cleaning. Two 2,000m³/h ballast pumps are provided for efficient

ballasting and deballasting.

The double side construction improves structural safety by reducing hold frame corrosion, damage, and flooding risk. This configuration also provides easy maintenance and inspection of the side structure and free access to the double bottom of ballast tanks at loaded conditions. Ballast tanks are coated with tar-free epoxy paint of light color instead the tar epoxy paint. This provides an easy and healthful environment for maintenance and inspection by the crew and port workers.

The combined effect of the sophisticated hull form and the MITSUBISHI 6UEC60LSII main engine achieves great fuel saving and reliability.

Principal particu-

lars

L (o.a.) x B x D x d: 235.00m x 43.00m x 18.55m x 12.90m

DWT/GT: 91,439t/50,464t

Cargo hold capacity: 108,929m³

Main engine: MITSUBISHI 6UEC60LSII diesel x 1 unit

MCR: 16,200ps x 105.0rpm

Speed, service: 14.3kt

Classification: NK

Complement: 25

Completion: February 28, 2007



Shin Kurushima delivers PCC to Bulkstar Enterprise

Shin Kurushima Dockyard Co., Ltd. has delivered WESTERN HIGHWAY, a pure car carrier with a transport capacity of 3893 units, which was constructed at its Onishi Shipyard. The carrier is designed with consideration of environmental protection and efficiency of roll-on/ off operation.

A total of ten car decks are provided, and of these, two decks are liftable for accommodating large heavy vehicles. A direct ramp from the boarding deck to the uppermost deck is installed on board the ship for efficient roll on/off. This permits both shortening the time required for car-handling operation and reducing fuel consumption and exhaust gas emission. Thus the ship is adaptable to the port environment. The support system for the liftable car deck employs a one-man control system to alleviate work. A stern rampway installed in the starboard side is 30.3m long and 7.0m wide, which can carry a vehicle weighing about 100 tons. In addition, two center rampways provided for starboard and port access. The rampways are 17.0m long and 5.5m wide and can carry a 20t class vehicle.

Suppression of noise and vibration as well as propulsion efficiency have greatly been improved by performance verification using a model tank test prior to designing. The carrier employs the high-

performance stem form, turbo ring (thrust-increasing attachment), and A. S. Fin (patent). The combined effect contributes to both achieving the world's lowest fuel consumption and reducing the load on the environment with a 5% decrease in fuel consumption compared with the same class PCC built by the company. The fuel tanks are arranged inside the inner hull of the double hull. Therefore, no leakage of fuel oil occurs if the outer shell is broken.

The cargo holds and the engine room have high-performance fire detection systems and highly expandable foam extinguishing systems which provide efficient fire extinguishing to secure ship safety. The fire extinguishing system does not emit CO₂, which contributes to reduction of greenhouse gases. The carrier has obtained the Class NK 'M0' notification. Remote control of



the main engine can be achieved from the bridge, and remote control of the main engine and auxiliary machinery is also possible in the main engine control room. A multi-functional ITV (Industrial TV) system is installed to ensure the safety of the engine room. Principal particulars

Owner: Bulkstar Enterprise Co., Ltd.
Builder: Shin Kurushima Dockyard Co., Ltd. Hull No.: 5346

Ship type: Car carrier

L (o.a.) x L (p.p.) x B x D x d: 188.03m x 183.70m x 28.20m x 27.97m x 8.524m

DWT/GT: 12,980t/39,422t

Main engine: 8UEC 50LSII diesel x 1 unit

Service speed: abt. 20.0 knots

Classification: NK

Completion: March 2007

Kawasaki delivers NORD LEADER to Forever Shipping

Kawasaki Shipbuilding Corporation delivered the 55,500DWT bulk carrier, NORD LEADER (HN:1576), to Forever Shipping S. A. at the Kobe Shipyard on Mar. 30, 2007. The carrier is the 13th of the 55,500DWT series developed by Ka-

wasaki.

The carrier is the flush deck type with forecastle and has five cargo holds. The shape of the cargo holds is suitable for carrying cargoes such as cereals, coal, ore, and steel products. The carrier employs the smooth bow form with low resistance against waves, which was developed for this series.

Fuel consumption is decreased compared with the conventional

type. Four deck cranes are installed between the hatch covers on the upper deck along the ship center line. This allows handling cargoes at a port with insufficient cargo handling equipment. The main engine uses the light, compact, and high output Kawasaki-MAN B&W 6S50MC-C diesel engine.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 189.90m x 185.00m x 32.26m x 17.80m x 12.50m

DWT/GT: 55,500t/31,000t

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

MCR: 8,200kW x 110rpm

Complement: 25

Classification: NK



Onomichi Dockyard develops MR type product carrier with independent pump system

Onomichi Dockyard Co., Ltd. has developed the MR-type product tanker using the independent pump system Mark IV. The specifications of the new product tanker correspond to the Easy Chemical Spec adaptable to chemical products of IMO Type II and



III.

The Mark IV tanker has been developed to cope with the category of noxious liquid substances that was revised this January. Ship specifications are decided as shown below but the deadweight tonnage will be the same 50,000DWT as the predecessor Mark III.

The new product tanker will be provided with submerged pumps for cargo handling. Japanese builders have used common pumps so far. Therefore, this is a unique improvement for the series of Onomichi product tankers.

Outline of Mark

IV tanker

Intended cargoes include three types: Crude oil, Clean and dirty petroleum products such as gasoline, naphtha, gas oil, jet fuel, kerosene, diesel oil, fuel oil, lubricating oil, etc., Chemical cargoes (IMO Type II and III allowable within the specifications.

Principal dimensions:

Length (o.a.): abt. 182.5m

Length (b.p.): abt. 175.0m

Breadth (mld.): 32.20m

Depth (mld.): 19.05m

No. 1 designed draft (mld.): 10.75m

No. 2 designed draft (mld.): 11.80m

Scantling draft (mld.): 13.10m

Gross tonnage (international, 1969):
abt. 29,500

Cargo tank capacity (slop tanks incl.):
abt. 55,000m³

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

Ship speed range: 15.8kt to 14.2kt

Complement: 25

Naikai completes open bulk carrier, DONIAMBO

Naikai Zosen Corporation completed construction of the 28,000DWT open bulk carrier, DONIAMBO (HN:702), for Santa Gloria Navigation S. A. at the Setoda Works on Mar. 28, 2007, and the carrier entered transport services of nickel ore and coal centered on New Caledonia.

The DONIAMBO is designed with the double hull construction that is the similar hull cross section to ore bulk carrier. Consequently, it has greater hull strength than the conventional bulker, and the safety is further improved against external damage. Even if the outer shell is damaged, cargo ore can be prevented from being lost overboard, and the cargo quality is also protected.

The bunker is entirely protected with the double side shell to prevent the leakage of fuel oil by the damage of the outer shell to avoid the marine pollution.

The cargo holds consists of four

compartments of the box shape and is designed for easy maintenance. Three deck cranes with a hoisting capacity of 30 tons installed on the upper deck. Wide hatch openings are employed to facilitate cargo handling operation.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 161.00m

x 154.50m x 26.00m x 14.00m x 9.00m

DWT/GT: 16,992t/28,428t

Cargo hold capacity: 30,321m³

Main engine: Hitachi MAN B&W
7S35MC (MARK7) diesel x 1 unit

NCR: 4,410kW x 164min⁻¹

Speed, service: 13.0kt

Classification: NK



Sanoyas completes Panamax bulker, CORAL EMERALD

Sanoyas Hishino Meisho Corp. recently completed the 75,632mt Panamax bulk carrier, CORAL EMERALD (HN: 1250), for Picer Marine, S. A. at the Mizushima Works and Shipyard. The vessel is the 69th of the series of Sanoyas Panamax, and is the

43th of the 75,500mt type, which has the widest beam permitted to pass through the Panama Canal.

The CORAL EMERALD has seven cargo holds with topside tanks and a hopper bottom for efficient loading and unloading of bulk cargoes. The living quarters and engine room are located aft. The hatch covers are the side rolling type driven by an electro-hydraulic motor and chains.

The main engine is a low-

speed, super long stroke, and 2-cycle diesel engine. The highly efficient and large diameter propeller assists in reducing fuel consumption.

Principal particulars

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

19.30m x 13.995m

DWT/GT: 75,632mt/38,893t

Cargo hold capacity: 89,201m³ (grain)

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

MCR: 12,200ps

Speed, service: About 14.5kt

Classification: NK

Complement: 25

Completion: Mar. 14, 2007



MES establishes Expertise Hand-down Center at Chiba and Tamano Shipyards

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) recently established the Expertise Hand-down Center for transition of shipbuilding technology to younger generations at its Chiba Shipyard and Tamano Shipyard.

The shipbuilding industry, especially in its production field, is suffering from the aging of staff and the handing-down of expertise to middle and younger class staff is an imminent task. MES has listed the skills of field staffs now have and what they should have in a form of the "Human

Resource Skill Map" to identify the hand-down schedule of expertise. Furthermore, to expedite such handing-down of expertise, MES has established the "Expertise Hand-down Center".

Expertise Hand-down Centers were inaugurated in January at both Chiba and Tamano Works, where teachers who are called "skill masters" with highly qualified expertise hand down their expertise (basic and advanced) to younger staff mainly by on-the-job training. Subjects are segmentalized according to the construction schedule of ships into welding, assembling, outfitting etc.

Basic subjects are taught to fresh workers of one to five-year experience and advanced subjects are taught to workers of five-year experience or more. The training period will generally be two or three months per person depending upon individuals and subjects.

Skill masters are selected according to their expertise and engage in training exclusively and/or for a certain period leaving their job temporarily. Meanwhile, trainees are selected according to the training schedule and to the request of the shop floor.

A skill master with one to five trainees will engage in specific work for handing down of the expertise in one team. Follow up activities will be made at certain intervals even after graduation from the center for better acquiring of what they have learned.

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HUMEN BRIDGE

Owner: KLB3207SHIPPING
 Builder: IHI Marine United Inc.
 Hull No.: 3207
 Ship Type: Container carrier
 L (o.a.) x B x D: 336.0m x 45.8m x 24.4m
 DWT/GT: abt. 99,214t/98,747t
 Loading capacity: 9,040TEUs
 Main Engine: MAN B&W 12K98ME diesel x 1 unit
 Output: 67,270kW (MCR)
 Speed, service: 24.5kt
 Classification: NK
 Delivery Date: Apr. 23, 2007

**BAOSTEEL EVOLUTION**

Owner: Ambitious Line S. A.
 Builder: Imabari Shipbuilding Co., Ltd. (Saijyo Shipyard)
 Hull No.: 8033
 Ship type: Bulk carrier
 L (o.a.) x L (b.p.) x B x D x d: 299.94m x 291.40m x 50.00m x 24.50m x 18.083m
 DWT/GT: 206,331t/104,721t
 Main engine: Mitsui-MAN B&W 6S70MC-C diesel x 1 unit
 Output: 18,630kW x 91rpm
 Speed, service: 15.1kt
 Classification: NK NS*
 Completion: Mar. 28, 2007

**TAIGA**

Owner: Fortis Maritime S. A.
 Builder: Mitsui Engineering & Shipbuilding Co., Ltd.
 Hull No.: 1669
 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 28.80m x 20.943m
 DWT/GT: 311,141t/160,109t
 Cargo tank capacity (100%): 354,751.2m³
 Main engine: Mitsui-MAN B&W 7S80MC-C diesel x 1 unit
 Max. continuous output: 27,160kW x 76rpm
 Complement: 30
 Classification: NK
 Completion: Mar. 28, 2007

**NICOLE**

Owner: Transmed Shipping Ltd.
 Builder: Namura Shipbuilding Co., Ltd. (Imari Shipyard & Works)
 Hull No.: 293
 Ship type: Bulk carrier
 L (o.a.) x L (b.p.) x B x D x d: 224.99m x 217.00m x 32.26m x 19.50m x 14.078m
 DWT/GT: 77,096t/40,690t
 Main engine: Hitachi B&W 6S60MC (Mk 6) diesel x 1 unit
 Output: 9,930 x 105.0rpm
 Speed, service: 14.5kt
 Complement: 25
 Classification: NK
 Completion: Mar. 28, 2007

**LOYAL UNION**

Owner: Sarpen Maritime Co.
 Builder: The Hakodate Dock Co., Ltd.
 Hull No: 830
 Ship type: Bulk carrier
 L (B.p.) x B x D x d: 182.40m x 32.00m x 16.55m x 11.655m
 DWT/GT: 48,549t/27,729t
 Main engine: Mitsubishi-6UEC50LSE diesel x 1 unit
 Speed: 14.0kt
 Classification: NK
 Completion: Feb. 20, 2007

**NORDBAY**

Owner: Nordbay Navigation Company Limited
 Builder: Universal Shipbuilding Corporation (Tsu Shipyard)
 Hull No.: 062
 Ship type: Oil tanker
 L (o.a.) x L (b.p.) x B x D x d: 249.0m x 240.00m x 44.00m x 20.80 x 13.71m
 DWT/GT: 116,104t/62,241t
 Cargo tank capacity: 131,340m³
 Main Engine: DU SULZER 7RTA58T diesel x 1
 MCR: 14,000kW x 103.0min⁻¹
 Speed, service: 15.3kt
 Classification: LRS
 Completion: Mar. 14, 2007

