

## MHI completes container carrier, *MOL Efficiency*



Mitsubishi Heavy Industries, Ltd. (MHI) has completed construction of the *MOL Efficiency* (HN: 1246), a large container carrier capable of carrying 4,646TEUs, for delivery to Mitsui O.S.K. Lines, Ltd. (MOL) at its Kobe Shipyard & Engine Works.

The *MOL Efficiency* is the first of four carriers ordered by MOL. The carrier is the Panamax type, and can load 2,074TEUs in container holds and 2,572TEUs (in maximum seven tiers) on the upper deck.

The main feature is adoption of a new hull arrangement for the fuel tanks. In the conventional container carrier, fuel oil is stored in tanks between outer shell and cargo holds. The new arrangement uses the bulkhead spaces for the fuel storage. Over 50% of the total storage capacity is shifted to the new location.

Thus, risks of oil spills in emergencies such as collision and grounding can considerably be reduced, ensuring environmentally friendly ship operation.

In addition, the new cylinder oil saving system based

on the Swirl Injection Principle (SIP) is adopted for the main engine, which provide better utilization and considerable reduction in consumption of cylinder oil.

### Principal particulars

Length, o.a.:	294.09m
Length, b.p.:	282.00m
Breadth, mld.:	32.22m
Depth, mld.:	21.85m
Draught, mld.:	13.50m
Deadweight:	63,160t
Gross tonnage:	53,822t
Main engine: Mitsubishi Sulzer 9RTA96C diesel x 1 unit	
MCR:	49,410kW x 100 min <sup>-1</sup>
NCR:	42,000kW x 94.7 min <sup>-1</sup>
Speed, service:	about 25.5kt
Complement:	30
Classification:	ABS
Completion:	Apr. 16, 2003



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# Imabari completes Panamax type product carrier *INCA*

Imabari Shipbuilding Co., Ltd. has completed construction of the 68,467DWT product oil carrier, INCA (HN: 2161), the second delivery of a series of four vessels at Koyo Dockyard Co., Ltd. of the Imabari Group. The product carrier incorporates the latest technology and rich experience of Imabari to satisfy reliability and performance requirements of the shipowner and operator.

The INCA is the flush deck type vessel with the engine room and accommodation deck house including navigation space are located aft. Hull construction uses the double side shell and double bottom type with a cargo and slop tank arrangement that consists of 16 tanks. These tanks are separated by the centerline longitudinal bulkhead.

Considering cargo handling, the cargo part hull members of all transverse beams are arranged on the upper deck side. Four longitudinals are arranged along double side shell, maintenance work is also facilitated.

## Hull outfittings

Deck machinery is all operated electro-hydraulically. Eight winches

are installed for mooring and anchor hoisting. The safety passages are provided from the bridge to the bow in accordance with the SOLAS II-1/3-3 regulation. The winching space provided for a helicopter is connected with the safety passage.

## Cargo handling equipment

Three main cargo oil piping systems are provided which allows simultaneous handling of three different type cargo oils. Double shut valve systems are used for each main cargo oil pipe to prevent from contamination. The cargo pumping system provided with PRIMA-VAC System. Therefore, the stripping of bottom oil can be instantaneously start immediately after oil unloading.

The vapor emission control system is provided to satisfy the USCG rules (46CRF, Chapter I-Part 39).

## Safety devices

The vessel is provided with the fixed type gas detector for BWT and cofferdam for monitoring in the cargo control room. In the cargo oil pump room, the fixed type flammable gas detector and O<sub>2</sub> densimeter are provided and monitoring can be achieved in the same way.

## Coating

Pure epoxy resin coating is applied to the inner wall of cargo oil tanks, which has superior characteristics against the various oil products. Tar epoxy resin coating is also applied to edge treatment of the material for ballast tanks and the protective measures against corrosion with strip coating. The backup anode with 6-year life is also installed.



## Machinery part

The 2-cycle main diesel engine and diesel generator comply with IMO NO<sub>x</sub> regulations to cope with air pollution prevention. Engine automation and design are based on the LRS UMS. For the diesel generator, fuel viscosity control and valve switching can be achieved at the control room.

## Electrical part

The following generators are installed:

Main diesel generators:	700 kVA (560kW) x 3 units
Emergency generator:	150 kVA (120kW) x 1 unit

One of main diesel generator is used at normal sea going, and two generators are used for cargo handling and during departure and arrival.

## Principal particulars

Ship Type: Product oil carrier  
 L (o.a.) x L (b.p.) x B x D x d: 228.54m  
 x 220.00m x 32.20m x 19.50m x  
 13.20m  
 DWT: 68,467  
 GT: 39,085t  
 Main engine: Mitsui-MAN B&W  
 6560MC Mark VI diesel x 1 unit  
 MCR: 10,002kW x 93.0rpm  
 NOR: 8,502kW x 88.1rpm  
 Speed, service: 14.50knots  
 Complement: 30  
 Classification: LRS  
 Handling gear: 15t x 1 set  
 Cargo pump: 2,000m<sup>3</sup>/h x 3 sets  
 Loading capacity (tank): 81,691m<sup>3</sup>

## To our readers

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## MES completes Malaccamax VLCC, *Iwatesan*

—*First Malaccamax design*—

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has delivered the 300,000DWT type double-hull crude oil carrier, *Iwatesan* (HN: 1557), to Fair Wind Shipping Navigation S. A. of Panama at the MES Chiba Works. The VLCC is the first of the Malaccamax<sup>(\*)</sup> type oil carrier that has been developed by MES. The cargo tank capacity of 352,606m<sup>3</sup> is the largest class among VLCCs.

The cargo tanks can load three types of crude oils simultaneously.



Cargo loading and unloading can efficiently be carried out using three cargo oil pumps, and a cargo oil-washing pump is installed. The *Iwatesan* has a newly developed bulbous bow, stern hull form, efficient propeller, and energy-saving unit (RBS fin), achieving the maximum propulsion efficiency as a VLCC.

The VLCC is designed to minimize emission of CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>x</sub>. The turbo electric generator is driven by energy recovered by the exhaust gas

economizer, lowering the fuel oil consumption by the generator. To ensure safe navigation, the VLCC uses the global positioning system (GPS) and differential GPS. An

electronic chart display information system and automatic identification system (AIS) are also equipped.

(\*) Malaccamax: The maximum hull form using the maximum draught permissible to pass through the Strait of Malacca, Malaysia. (Most Japanese shipowners operate VLCCs with a draught shallower than 20.5m)

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 333.00m x 320.00m x 60.00m x 29.65m x 20.92m

DWT/GT: 300,667t/159,912t

Cargo tank capacity (100%): 352,606m<sup>3</sup>

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

MCR: 27,160kW x 76rpm

Speed, service: 16.55kt

Complement: 30

Classification: NK

## Kawasaki completes LPG carrier, *Clipper Star*

Kawasaki Shipbuilding Corporation (Kawasaki) has delivered the 59,342m<sup>3</sup> LPG/NH<sub>3</sub> carrier, *Clipper Star* (HN: 1522), to Partrederiet Clipper Star DA of Norway at its Sakaide Shipyard. The carrier is the first of a series of five carriers for an LPG project, Solvang ASA and Bergesen DY ASA of Norway. The carrier is the 34th LPG carrier built by Kawasaki.

The *Clipper Star* has been constructed with a new hull design developed as a multipurpose liquefied gas carrier based on Kawasaki's experience in gas carrier construction. It is designed to cope with several types of liquefied gases such as petroleum gas (butane/propane) and ammonia. Four independent cargo tanks are provided, which can contract freely from the hull construction when exposed to cargoes of very low temperature.

The cargo tanks are constructed with special steel durable to the lowest temperature of minus 48°C and

insulated with urethane foam. To facilitate cargo handling at ports, the reliquefaction units use three-stage compressors. Cargo heaters, vaporizers, booster pumps, and aeration fans are also provided. The main engine uses a fuel-saving super-long stroke, 2-cycle low-speed diesel engine, and Kawasaki RBS-F (Rudder Bulb System with Fins) is installed to improve propulsion. These features all reduce the fuel consumption. The use of an electric-control lubrication system also reduces the consumption of lubricant for cylinders.

The engine and cargo section operation is also totally managed by the integrated automation system (IAS). Various components and valves of both sections can be monitored and con-

trolled at the central control room.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 205.00m x 195.00m x 32.20m x 20.20m x 12.00m

DWT/GT: 44,807t/34,970t

Cargo tank capacity: 59,342m<sup>3</sup>

Main engine: Kawasaki-MAN B&W 5S60MC-C diesel x 1 unit

MCR: 11,275kW x 105rpm

Speed, service: about 16.2kt

Complement: 31

Classification: DNV



## Sanoyas completes Aframax tanker, *Montigny*

—Wider beam employed—

Sanoyas Hishino Meisho Corp. has completed the Aframax crude oil carrier (115,000DWT), *Montigny* (HN: 1205), for San Tomas Shipping Corp. at the Mizushima Works and Shipyard. The carrier has the largest capacity of a newly developed Aframax tanker by the company, and this is the first newbuilding of the design. The beam is 44m, 2m wider than the predecessor, and the same shallow draught is employed. Moreover, the deadweight tonnage and cargo tank capacity are maximized up to 115,418mt, 131,617m<sup>3</sup> respectively, and improved propulsion efficiency achieves less fuel consumption.

Six pairs of cargo oil tanks, in which slop tanks are included, are arranged along the centerline. The living quarters and engine room are located in the aft section. Double hull structure is adopted to the shipsides and bottom on the cargo tank section, and ballast tanks are provided between the inner and outer shells. Mild steel

is positively adopted to the hull structure for increasing reliability against corrosion damage.

The cargo oil handling system consists of three 2,800m<sup>3</sup>/hr cargo oil pumps and three independent cargo oil pipes, permitting handling of three types of cargo oils simultaneously. Smooth and easy cargo oil handling operation is remotely controlled at the cargo control room. Precision electric liquid level meters are installed for cargo oil tanks. The main engine is a low-speed, super long stroke, and 2-cycle diesel, and the propeller has an effective cross section to produce efficient thrust force together with the Sanoyas tandem fins "STF" (patent pending) to increase thrust. The combined effect results in further fuel saving. The engine

room is qualified with ABS ACCU.

The navigation section uses an automatic identification system for other ships, a video data recorder for navigation, and other latest equipment required for navigation and radio communication.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 249.00m  
x 238.00m x 44.00m x 21.20m x  
14.825m

DWT/GT: 115,418mt/61.991t

Main engine: MAN B&W 6S60MC-C  
diesel x 1 unit

MCR: 18,420ps

Speed, service: about 14.7kt

Classification: ABS

Complement: 28



### NOR-SHIPPING 2003

#### *Japan showcases full range of ship technology today*

NOR-SHIPPING 2003, the 19th international shipping exhibition and conference, organized by Norges Varemesse (Norway Trade Fairs), was held at the Lillestrom Exhibition and Congress Centre in Lillestrom, Norway, from June 3 through 6, 2003. 1,150 companies from 52 nations participated in the exhibition, and it was

visited by an estimated 12,711 people.

The Japan Ship Exporters' Association (JSEA) participated in the exhibition in cooperation with The Shipbuilders' Association of Japan and 10 Japanese shipbuilding companies under a grant from The Nippon Foundation, which showcased the Japanese shipbuilding industry today, using photos, scale-model ships, and a plasma display system.

The opening day (June 3) had many guests including Mr. Ansgar Gabrielsen, Minister of Trade and Industry of Norway who visited every exhibition booth

after the opening ceremony. The ceremony proceeded with the opening speech of Mr. Terje K. Andersen, president of the Norwegian Shipowners' Association, and the official commendation of The Annual Ship of The Year by Mr. Ansgar Gabrielsen. Japanese participants in the ceremony were Mr. M. Kawai, the Japanese Ambassador to Norway, Mr. T. Okano, president of JSEA and concurrently chairman of Mitsui Engineering & Shipbuilding Co., Ltd., and other JSEA officials.

The cocktail party held on June 4 at the Radisson SAS Scandinavia Hotel, Oslo, co-sponsored by Ambassador Kawai and Mrs. Kawai as well as the JSEA president Okano and Mrs. Okano. About 620 guests were invited from various circles including Norwegian shipowners. JSEA vice presidents Namba, Matsuda and Minami attended the party.



From left are: Mr. Okano, Ambassador Kawai, and Mr. Tamura, chairman of JSMEA

## New JSEA President appointed

The 84th Annual General Meeting of the Japan Ship Exporters' Association (JSEA) selected 33 directors and two auditors in Tokyo on May 21, 2003. Subsequently, the 516th Directors' Meeting was held and selected Mr. Toshimichi Okano, Chairman of Mitsui Engineering & Shipbuilding Co., Ltd., as the new JSEA President.

Mr. Okano's tenure will last the usual two years. Mr. Okano has just completed a two-year term as Chairman of the Shipbuilders' Association of Japan (SAJ), having held the position since 2001.

At the same meeting, four executive vice presidents of the JSEA were appointed: Naohika Namba, director of Mitsubishi Heavy Industries, Ltd.; Akira Matsuda, corporate senior vice president of Marubeni Corporation; Sho Minami, president of Oshima Shipbuilding Co., Ltd.; and



Mr. T. Okano  
JSEA President



Mr. M. Ito  
SAJ Chairman

Masahiro Abe, senior executive vice president, group CEO, Machinery of Mitsubishi Corporation.

Mr. Taizo Fukuda was appointed as the Senior Managing Director of the JSEA. Mr. Toshio Kamei, the former President of the JSEA, was also appointed as a new Advisor to the JSEA at the meeting.

### New SAJ chairman appointed

The annual general meeting of the Shipbuilders' Association of Japan (SAJ) held on June 17 elected Mr. Mototsugu Ito as the chairman. Mr. Ito is concurrently president of Ishikawajima-Harima Heavy Industries Co., Ltd.

Sumitomo Heavy Industries, Ltd. (SHI) recently unveiled a new system to increase efficiency in port logistics, which has been in operation since May this year, aiming for the container terminal market. The system is the first in the world to make substantial use of mobile telephones as port logistics work terminals, and was introduced to the newest container terminal (Kobe Port berth PC-18) of Kamigumi Co., Ltd., which became operational in May.

The new system permits people involved in port logistics, such as shippers, shipping lines, truckers, container truck drivers and container terminal staff, to perform a range of procedural tasks by simply using their mobile phones, including looking up berth information and issuing and checking on booking instructions.

Rather than sell the system as a package, SHI has decided to make it available as a charge-per-use service in a move designed to minimize start-up investments for port facility operators who want to implement the system.

The system's most salient feature is its cutting-edge gate procedure functions, which alleviate container-truck congestion at terminal gates. Information needed to complete all container

## SHI launches new mobile phone-based system for streamlining port logistics

clearing procedures is converted into two-dimensional code and sent to drivers' mobile telephones by e-mail, so all drivers need to do is "swipe" their mobile phones past a code reader to complete container pick-up and delivery formalities at the gate. Clearing procedures can be completed instantly and accurately, with problems such as procedural mistakes totally averted.

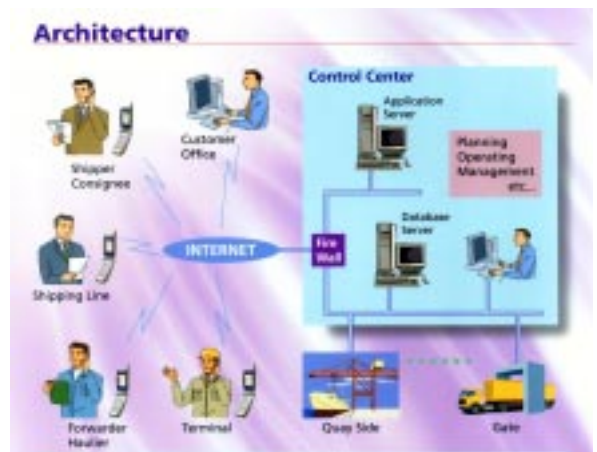
An add-on option, the Container Damage Check System\*, uses a special camera to perform automatic scans of containers for damage. This allows one person at the gate to complete in 20 seconds a task that normally takes four people five minutes to perform.

For truckers, the system offers the convenience of being able to enquire whether their containers are ready for pickup by simply checking their mobile hand-

sets. Haulers can even check on gate congestion, by seeing a real time camera image sent to their mobile phone displays, so they can optimize truck dispatch.

Every year, the world is seeing considerable growth in the transport of goods by container; port operation and management are becoming increasingly computerized, and a growing number of terminals are automated and operate 24 hours a day. The development of the SHI's new port management system is the product of the company's strength in data systems, and provides a comprehensive solution that will help make port operations more efficient.

\* Available from Inspire Port Consulting & Solutions, Inc. of South Korea.



## NYK Aphrodite

**Owner:** Great River Line S. A.  
**Builder:** IHI Marine United Inc.  
**Hull No.:** 3157  
**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  
**Container carrying capacity:** 6,492TEUs  
**Main engine:** DU-Sulzer 12RTA96C diesel x 1 unit  
**Speed, service:** 25.0kt  
**Classification:** NK  
**Completion:** Apr. 21, 2003



## Bulk Sirius

**Owner:** Million Comets S. A.  
**Builder:** Kawasaki Shipbuilding Corporation  
**Hull No.:** 1535  
**Ship type:** Bulk carrier  
**L (o.a.) x L (b.p.) x B x D x d:** 189.90m x 181.00m x 32.26m x 16.90m x 11.90m  
**DWT/GT:** 50,344t/27,989t  
**Main engine:** Kawasaki-MAN B&W 6S50MC-C diesel x 1 unit  
**Classification:** NK  
**Completion:** Mar 12, 2003



## Champion

**Owner:** Aldan Finance Ltd.  
**Builder:** Sumitomo Heavy Industries Marine & Engineering Co., Ltd.  
**Hull No.:** 1293  
**Ship type:** Tanker  
**L (o.a.) x B x D x d:** 239.00m x 42.00m x 21.30m x 14.85m (scant-



ling, moulded)  
**DWT/GT:** abt. 105,200mt/ 56,203t  
**Main engine:** Diesel United-Sulzer 6RTA58T diesel x 1 unit  
**Speed, service:** abt. 14.9kt  
**Classification:** LRS  
**Completion:** June 10, 2003

## Silver Lining

**Owner:** Melodia Maritime Pte. Ltd.  
**Builder:** Shin Kurushima Dockyard Co., Ltd.  
**Hull No.:** 5156  
**Ship type:** Product tanker  
**L (o.a.) x B x D x d:** 179.88m x 32.2m x 18.7m x 12.0m  
**DWT/GT:** 46,013t/28,059t  
**Main engine:** 6UEC60LA diesel x 1 unit



**Speed, (trial max.):** 16.61kt  
**Classification:** NK  
**Completion:** Feb. 26, 2003

## Emerald Stream

**Owner:** Wealth Line Inc.  
**Builder:** Oshima Shipbuilding Co., Ltd.  
**Hull No.:** 10315  
**Ship type:** Bulk carrier  
**L (o.a.) x L (b.p.) x B x D x d:** 225.00m x 215.00m x 32.26m x 19.39m x 14.126m (scantling)  
**DWT/GT:** 76,858t/39,966t



**Main Engine:** MAN B&W 5S60MC-C diesel x 1 unit  
**Speed, service:** 14.5kt (with 15% SM)  
**Classification:** NK (M0)  
**Completion:** Apr. 16, 2003

## Bunga Kasturi



**Owner:** Malaysia International Shipping Corporation Berhad  
**Builder:** Universal Shipbuilding Corporation  
**Hull No.:** 5004  
**Ship type:** VLCC  
**L (o.a.) x L (b.p.) x B x D x d:** 329.99m x 316.00m x 60.00m x 29.70m x 21.566m  
**DWT/GT:** 299,999t/156,967t  
**Main Engine:** Hitachi Zosen MAN-B&W 7S80MC (Mk VI) diesel x 1 unit  
**Speed, service:** 16.00kt  
**Classification:** ABS  
**Completion:** Apr. 4, 2003

## Fortune Glory



**Owner:** Dynamic Hope Shipping S. A.  
**Builder:** Toyohashi Shipbuilding Co., Ltd.  
**Hull No.:** 3548  
**Ship type:** Bulk carrier  
**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 12.14m  
**DWT/GT:** 53,350t/29,862t  
**Main engine:** Mitsui-MAN-B&W 6S50MC (Mark 6) diesel x 1 unit  
**Speed, Service:** 14.75kt  
**Classification:** KR  
**Completion:** May 16, 2003