



## Onomichi completes its third generation product tanker, MAERSK MUROTSU



Onomichi Dockyard Co., Ltd. delivered the first vessel of the newly developed third-generation product tanker (MR-III) series, named MAERSK MUROTSU, in June 2010. MR-III is the highest performance MR series developed by Onomichi. Since MR-III was released to the market in 2007, Onomichi has received 14 orders for MR-III vessels (2010).

Onomichi built a total of 75 of the previous MR-I and MR-II types. Prior to the process of the initial planning of MR-III, Onomichi researched opinions and comments from its customers actually operating the previous MR-I and MR-II series for the purpose of adopting as many as ideas as possible into the standard specification to improve customer satisfaction and the quality of the "Onomichi Brand."

Onomichi succeeded in obtaining many valuable and

useful opinions from not only the owners, but also the officers and crew actually operating and sailing onboard Onomichi's tankers. After analyzing all replies and opinions, Onomichi applied 100 selected improvements and features into the specifications of MR-III. This marketing activity has achieved great satisfaction and favorable impressions of the ship owners and operators who have already signed shipbuilding contracts for MR-III vessels.

Onomichi established the basic concept consisting of four design themes in its initial planning of the MR-III design. The first theme is "Environment" that is prevention of marine pollution and provision of good crew conditions. The second theme is "Safety" that is securing conditions for safe working and evacuation in an emergency. The third

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theme is "Operation" that is achievement of better operability of machinery and equipment and the fourth theme is "Maintenance" that is enabling of easy access for maintenance jobs and providing maintenance-free conditions.

The main features and equipment for these four design themes are;

**Environment:** Air-sealed system for the stern tube to reduce the possibility of oil leak, and the newly developed "ONOMICHI PARALLEL FIN" achieving about 5-6% improvement in propeller performance, the "ONOMICHI STRAIGHT BOW" reducing wave resistance, and the unique slant face of the superstructure to reduce

air resistance by 16%.

**Safety:** On deck flying passages from the accommodation structure to the bow area for safe access in rough weather. **Operation:** Adopting rules and requirements of the major oil companies.

**Maintenance:** Arrangement of equipment and machinery for good maintainability, and protection countermeasures for equipment located on the upper deck.

As a brand-new product tanker, the MK-III specification complies with the new rules of IMO, IACS, and others, which have already become effective. The crew accommodation is designed to satisfy the Maritime Labor Convention, 2006 (MLC, 2006), which is ex-

pected to enter into force during 2011. The unique appearance of the accommodation design is not only for reducing air resistance, but also expresses our desire to build beautiful vessels.

Principal particulars:

Length, o.a.:	182.50m
Length, b.p.:	175.00m
Breadth, mld.:	32.20m
Depth, mld.:	18.40m
Draught, mld.:	12.90m
DWT/GT:	50,000t/28,300
Cargo oil tank capacity:	55,000m <sup>3</sup>
Main engine:	MAN B&W 6S50MC (Mk 6) diesel x 1 unit
Output:	8,580kW x 127rpm
Speed, service:	15.3kt
Classification:	NK

## Shin Kurushima develops new energy saving bow form

—Applied to bulk carriers as standard spec—

Shin-Kurushima Dockyard Co. Ltd. and Hiroshima University have jointly developed a new bow form that will help increase propulsion performance. The new bow is named the SK-Bow (Shin-kurushima Knuckled-shape Bow) as shown with attached illustration, and the bow form can decrease resistance in waves. The en-

ergy consumption of ships will eventually be reduced.

The collaboration team started R&D for the new bow form that can decrease resistance in 2007. In the three-year study, the team focused on optimizing the form of the bow above the waterline using the latest theoretical calculations and consequently de-

veloped the SK-Bow.

Generally, a blunt ship such as a bulk carrier has a larger added wave resistance because of the reflective effect of incident waves on the bow, particularly in the range of short wave length. The characteristic form of the SK-Bow can reduce the reflective effect by scattering incident waves on the bow, eventually alleviating added wave resistance.

The SK-Bow can decrease the added wave resistance in regular waves by 30% at the maximum, which has been verified by tests in the experimental towing tank. Accordingly, a vessel equipped with the SK-Bow navigating in rough seas can drastically reduce fuel oil consumption and carbon dioxide (CO<sub>2</sub>) emissions.

Shin Kurushima is now increasing studies on new technologies related to energy saving. The company announced a new high-efficiency propeller last year, which was developed in collaboration with Kyushu University. The new propeller is called the "K3 (Kei Cubic) propeller."

The SK-Bow and high-efficiency propeller will be adopted in combination for medium-size bulk carriers as a standard application.



## Kawasaki completes bulk carrier, HOUYU

Kawasaki Shipbuilding Corporation completed construction of the 55,100DWT bulk carrier, HOUYU (HN: 1627), at its Kobe Shipyard for TRI-SHIP S.A. on July 29, 2010. The vessel is the 32nd delivery of the 55,000DWT series of the company.

The HOUYU is the flush deck type with a forecastle. Five cargo holds are arranged to efficiently transport various bulk cargoes such as cereals, coal, ore, or steel products. Kawasaki's new-type stem is employed, which has a very smooth shape that can reduce wave resistance, i.e., decreases the fuel consumption compared with the previous design.

Four deck cranes with a hoisting capacity of 30 tons are installed between hatch covers along the ship centerline, coping with a port that has insufficient shore cargo-handling equipment.

### Principal particulars

Length, o.a.:	about 189.90m
Length, b.p.:	185.00m
Breadth, mld.:	32.26m
Depth, mld.:	17.80m
Draught, mld.:	12.50m
DWT/GT:	about 55,100t/31,000

Main engine:	Kawasaki-MAN B&W 6S50MC-C7 diesel x 1 unit
MCR:	8,200kW x 110rpm
Complement:	25
Classification:	NK
Completion:	July 29, 2010



## Imabari delivers 61,494DWT bulker, IKAN SENYUR

Imabari Shipbuilding Co., Ltd. delivered 61,494DWT bulk carrier, IKAN SENYUR (HN: K021), to the owner, E.K.LINE S.A., at the Shin-Kasado Dockyard in Sept. 13, 2010. The vessel is the first of the 61,000DWT class bulk carrier series named I-STAR developed by Imabari.

The vessel was designed and constructed as an oceangoing bulk carrier suitable for carrying a variety of cargoes including grain, coal, hot steel coils, long steel products, cement, and iron ore.

The vessel has single hull construction consisting of five cargo holds together with topside tanks, double bottom tanks, and side hopper tanks.

Hatch covers are the folding type driven by the electro-hydraulic system, and four deck cranes are installed on the upper deck. To facilitate handling of large cargo, the hatch opening width and tanktop flat length are arranged to have the same size for each cargo hold.

Fuel oil tanks at the engine room and topside tanks are double hull con-

struction for safety assurance. To avoid heat damage to cargoes, a F.O. shifter is installed as a fuel oil heating system.

The main engine uses the latest model of B&W 6S50MC-C (Mark 8) diesel engine to achieve a service speed of 14.5 knots. An energy saving device, the "Hybrid Fin" developed by Imabari, is installed at the fore edge of the rudder just after the propeller. These installations contribute to environment-friendly/economical operation of the vessel.

### Principal particulars

Length, o.a.:	199.98m
Length, b.p.:	195.00m
Breadth, mld.:	32.24m
Depth, mld.:	18.60m
Draught, ext.:	13.01m
DWT/GT:	61,494t/34,795
Main engine:	Mitsui-MAN B&W 6S50MC-C (Mk 8) x 1 unit
MCR:	8,450kW x 108 rpm
Speed, service:	14.5kt
Complement:	25
Classification:	NK
Delivery:	Sept. 13, 2010



## MHI completes 78,500m<sup>3</sup> type LPG Carrier YURICOSMOS

Mitsubishi Heavy Industries, Ltd. (MHI) completed construction of the YURICOSMOS (HN: 2246), an LPG carrier with a tank capacity of 78,908m<sup>3</sup>, and delivered the vessel to Venus Ocean Navigation S.A. at the Nagasaki Shipyard & Machinery

Works on July 23, 2010. The vessel is the thirty-eighth 78,000m<sup>3</sup> class LPGC of MHI.

The vessel is designed as a straight LPG carrier to carry propane and butane. The sophisticated hull form, optimum design of the propeller, and Mitsubishi-Reaction fin achieve high propulsive performance with less vibration.

Main dimensions and cargo equipment are designed to be compatible with

worldwide terminals. A booster cargo pump and a cargo heater/vaporizer are equipped to cope with various types of shore facilities.

### Principal particulars

Length (o.a.):	230.0m
Length (b.p.):	219.0m
Breadth:	36.6m
Depth:	20.80m
Draught (summer):	10.804m
GT:	46,025
Cargo tank capacity:	78,908m <sup>3</sup>
Main engine:	Mitsubishi
	7UEC60LSII x 1 unit
Output:	12,360kW x 100rpm
Speed, service:	16.4kt
Classification:	NK



## Sanoyas completes Handy Cape bulker BRILLIANT JUPITER

120,000DWT-type Handy Cape bulk carrier BRILLIANT JUPITER built at Mizushima Works and Shipyard of Sanoyas Hishino Meisho Corp. was delivered to Golden Sunlight S.A. (Panama) on July 23, 2010.

This is the second vessel of the 120,000DWT series jointly developed with Mitsui O.S.K. Lines and has large deadweight with shallow draft, anticipating the trade expansion for coal and iron ore in future markets. The wide beam, and shallow draft can clear the restrictions of some ports, which are applied to large bulk carriers. Therefore, the series has been named "Handy Cape" because of its excellent operability as Cape-size bulk carriers.

Propulsion efficiency of the vessel has been improved using a low-speed and long-stroke main engine combined with a high-efficiency propeller. Moreover, the Sanoyas-Tandem-Fin (STF, patented) energy saving device (max. 6% energy saving) is attached to the stern shell, contributing to reduction of CO<sub>2</sub> emissions.

To ensure protection of the marine environment, the vessel uses various countermeasures such as fuel oil tanks with double hull structures,

light color and tar-free coating for ballast tanks, a holding tank for accommodation discharges and dirty hold bilge, and an independent bilge segregation system for the engine room.

To increase the efficiency of cargo-handling work, cargo hatches are widened as much as possible with the same width from Nos.1 to 7 hatches. Dedicated fresh water tanks are provided for storing hold washing water produced by a large capacity fresh water generator. In addition, a special fuel oil heating system is applied to the fuel oil storage tanks to avoid cargo damage by over-heating and save steam consumption.

Safe maneuverability is achieved with the optimum arrangement of the bridge and good visibility of the rear in the wheelhouse. Wooden furniture

installed in cabins helps make the crew comfortable during navigation.

### Principal particular

Owner:	Golden Sunlight S.A.
Hull No.:	1286
Ship type:	Bulk carrier
L (o.a.) x L (b.p.) x B x D x d:	245.00m x 238.00m x 43.00m x 21.65m x 15.404m
DWT/GT:	119,480t/64,642
Cargo hold capacity:	135,717m <sup>3</sup> (grain)
Main engine:	MAN B&W 6S60MC-C diesel x 1 unit
MCR:	13,560kW
Speed, service:	abt. 14.5kt
Classification:	NK
Complement:	25
Delivery:	July 23, 2010
Flag:	Panama



## Universal completes Panamax bulk carrier, MIGHTY SKY

Universal Shipbuilding Corporation delivered the 81,200DWT bulk carrier, MIGHTY SKY, at the Maizuru Shipyard on June 28, 2010.

The vessel is the 11th vessel of the newly designed Panamax type bulk carrier and has the largest deadweight and cargo hold capacity within the restriction of the length overall for the Panamax type bulk carrier, which is accomplished by various independent technologies of the company.

The bow shape, called the Ledge-Bow, reduces the added wave resistance not only at the laden condition but also the ballast condition. The Ledge-bow is newly developed and provides more superior performance at sea than the Ax-Bow, which em-

ployed by more than 80 vessels.

The vessel can achieve high propulsion efficiency and energy saving with the Surf-Bulb (Rudder fin with bulb) after the propeller and SSD (Super Stream Duct) in front of the propeller.

Principal particulars  
 L (o.a.) x L (b.p.) x B x D x d: 225m x 222m x 32.26m x 20m x 14.38m  
 DWT/GT: 81,502t/42,604  
 Cargo Hold Capacity: 96,030m<sup>3</sup>  
 Main engine: MAN B&W 7S50MC-C



diesel x 1 unit  
 Speed, service: 14.6kt  
 Complement: 25  
 Classification: LRS  
 Completion: June 28, 2010

## Accumulated 70 Million BHP Production Achieved by Mitsui-MAN B&W Diesel Engine

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has achieved the accumulated production of 70 million horsepower by a single model engine. This record was established when MES completed construction of a Mitsui-MAN B&W 7S80MC-C7 diesel engine at its Tamano Works for Namura Shipbuilding Co., Ltd., which will install the engine in a 250,000DWT ore carrier now under construction for its owner NYK Line.

Only two years and three months since MES achieved an accumulated 60 million horse power production in March 2008, 70 million of accumu-

lated horse power was completed since it produced the first engine in 1928. The annual production in the fiscal year of 2010 is expected to be 4.32 million horse power.

Since the technical agreement with B&W, Denmark (presently MAN Diesel & Turbo) in 1926 on the production of diesel engines, MES has been producing engines with excellent records as a leading engine manufacturer worldwide.

In order to develop the environmental technology of the marine diesel engine, MES joined this year in the 4-year governmental project of "Re-

search & Development of Technology to Decrease CO<sub>2</sub> Emission by Large-size Slow Speed Marine Diesel Engine" and intends to develop a new technology for decreasing CO<sub>2</sub> emissions. For demonstra-

tion of various elementary technologies that MES has developed, a 4-cylinder test engine (of 500 mm bore) was newly constructed and installed to carry out full scale demonstration tests. MES is also strengthening the after-service sector of the engine business including the newly developed Marine Diesel Engine Performance/Life Expectancy Diagnosis System (product names "e-GICS" and e-GICSW), for which communications satellite and Internet links are fully utilized and is committed to ensure high quality customer satisfaction.

[Principal Particulars of Main Engine marking 70 millions accumulated horsepower]

Engine Type; Mitsui-MAN B&W Diesel Engine 7S80MC-C7  
 Length Overall: about 12 m  
 Height: about 13.6 m  
 Width: about 5m  
 Cylinder Bore: 800 mm  
 Piston Stroke: 3,200 mm  
 Maximum Continuous Output: 27,160 kW x 76 rpm (36,960 horsepower)  
 Date of Shop Trial: June 2, 2010



**FPMC C JADE**

Owner: FPMC Jade Marine Corp.  
 Builder: IHI Marine United Inc.  
 Hull No.: 3250  
 Ship type: VLCC  
 L (o.a.) x B x D: 333.00m x 60.00m x 29.00m  
 DWT/GT: Approx. 302,000t/159,869  
 Main engine: DU-WARTSILA 7RTA84TB diesel x 1 unit  
 MCR: 27,160kW x 74.0rpm  
 Classification: ABS  
 Flag: Panama  
 Completion: July 15, 2010

**MAPLE ISLAND**

Owner: Soyo Shipping Inc.  
 Builder: Mitsui Engineering & Shipbuilding Co., Ltd.  
 Hull No.: 1738  
 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 17.90m  
 DWT/GT: 55,610t/31,243  
 Main engine: Mitsui-MAN B&W 6S50MC-C diesel x 1 unit  
 MCR: 9,480kW x 127.0rpm  
 Speed, service: 14.5kt  
 Complement: 24  
 Classification: NK  
 Flag: Panama

**VEGA DREAM**

Owner: SMFL Orchid Co., Ltd.  
 Builder: Namura Shipbuilding Co., Ltd.  
 Hull No.: 331  
 Ship type: Bulk carrier  
 L (o.a.) x B x D x d: 289.98m x 45.00m x 24.70m x 18.00m  
 DWT/GT: 174,713t/91,468  
 Main engine: MAN-B&W 6S70MC-C (Mk 7) diesel x 1 unit  
 Speed, service: abt. 14.60kt  
 Classification: NK  
 Complement: 25  
 Completion: July 27, 2010

**MOL SUCCESS**

Owner: Lucretia Shipping, S.A.  
 Builder: Naikai Zosen Corp.  
 Ship type: Container carrier  
 L (o.a.) x L (b.p.) x B x D x d: 199.93m x 188.00m x 32.20m x 16.60m x 9.80m  
 DWT/GT: 33,543t/27,104  
 Main engine: MAN B&W 7S70MC-C diesel x 1 unit  
 MCR: 21,735 kW x 91min<sup>-1</sup>  
 NCR: 19,560kW x 88min<sup>-1</sup>  
 Speed, service: abt. 22.2kt  
 Classification: NK  
 Complement: 25  
 Completion: July 30, 2010

**GOLDEN ARGO**

Owner: Anchor Trans Inc.  
 Builder: Niigata Shipbuilding & Repair, Inc.  
 Hull No.: N-0041  
 Ship type: Chemical tanker  
 L (o.a.) x B x D x d (ext.): 119.22m x 20.00m x 11.65m x 9.10m  
 DWT/GT: 12,163t (at d=9.10 m) 7,248  
 Main engine: Makita-Mitsui-MAN B&W, 7L35MC (Mk 6) x 1 unit  
 Output: 4,550kW at 210min<sup>-1</sup>  
 Speed, service: 13.00kt  
 Classification: ABS  
 Flag: PANAMA  
 Completion: June 28, 2010

**SANKO POWER**

Owner: The Sanko Steamship Co., Ltd.  
 Builder: Sasebo Heavy Industries Co., Ltd.  
 Hull No.: S780  
 Ship type: Bulk carrier  
 L (o.a.) x B x D x d (ext.): 292.0m x 45.00m x 24.70m x 18.175m  
 DWT/GT: 181,196t/93,369  
 Main engine: B&W 6S70MC-C diesel x 1 unit  
 Speed, service: 15.3kt  
 Classification: Nippon Kaiji Kyokai  
 Completion: Sept. 1, 2010

