SEA-Japan

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JMU completes 311,000 DWT crude oil tanker, ENEOS EARTH

Japan Marine United Corporation (JMU) delivered the ENEOS EARTH, a 311,000DWT crude oil tanker, to ELM MARITIME S.A. at its Ariake Shipyard on December 27, 2018. This is the fourth vessel of the newly developed eco-type Malacca max VLCC after integration of Universal Shipbuilding Corporation and IHI Marine United Inc.

Principal particulars have been optimized for transportation between the Middle East and Japan, while satisfying the restrictions of domestic ports. Various and latest technologies developed through JMU's extensive experience in building tankers have been incorporated into the vessel.

High propulsion performance was achieved by the application of lower resistance and high effiiciency hull form, and optimized energy saving devices such as the Super Stream Duct®, SURF-BULB® and ALV-Fin®. In addition, good sea performance was achieved by the application of the low wind resistance accommodation house and unique bow shape called the "LEADGE-BOW®." Furthermore, the fuel oil consumption was further improved by the application of a new electronically controlled marine diesel engine, low friction paint, and large diameter propeller. The vessel satisfies the Energy Effiiciency Design Index (EEDI), phase 2, which is required for vessels contracted for construction on or after 2020.

The vessel is designed to ensure compliance with future environmental rules and regulations by installing the Ballast Water Management System and furnishing the inventory list of hazardous materials. In addition, this vessel is the first VLCC equipped with a SO_x scrubber in Japan to comply with MARPOL ANNEX VI Regulation 14. All these features ensure the vessel's effectiveness in energy-saving and environmental friendly performance.

Principal particulars

L (o.a.) x B x D x d:	339.5m x 60.0m x 28.5m x 21.085m
DWT/GT:	312,175t/160,723
Main engine:	WinGD W7X82 diesel x 1 unit
Speed, service:	15.5kt
Complement:	30
Classification:	ClassNK

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Kawasaki delivers LNG carrier, SHINSHU MARU, to JERA-NYK Line JV

Kawasaki Heavy Industries, Ltd. delivered the SHINSHU MARU (HN: 1734), a 177,000m³ capacity LNG transport vessel for use by Trans Pacific Shipping 7 Limited, a joint venture between JERA Co., Inc. and Nippon Yusen Kabushiki Kaisha (NYK Line) on February 15, 2019. The second of Kawasaki's line of 177,000m³ capacity LNG carriers to be commissioned, this ship is designed to enable passage through the newly expanded Panama Canal, which opened for full operations in 2016.

The SHINSHU MARU will be used by JERA to transport LNG procured via the Freeport LNG Project in the U.S. The vessel features standard LNG carrier hull dimensions to allow docking at major LNG terminals around the world, but has larger cargo tanks for increased transport capacity, so cutting LNG transport costs and facilitating more flexible LNG trade operations by shipowners. Kawasaki has optimized the hull structure to decrease overall ship weight, enhanced the hull-shape design, and adopted a two-motor, twin-screw propulsion system to achieve the optimum propulsive performance, and has integrated a DFD* electric propulsion system which increases fuel effiiciency at all speeds.

This large-scale LNG carrier is equipped with four independent Moss LNG tanks for a total cargo capacity of 177,277m³. By increasing the LNG tank diameter to the maximum installable limit and utilizing stretched tanks, Kawasaki has successfully expanded the maximum LNG carrying capacities of carriers designed to pass through the newly expanded Panama Canal.

The SHINSHU MARU uses the DFD electric propulsion system, which enables greater fuel effiiciency than the existing steam turbine plant design. Moreover, the inclusion of a two-motor, twin-screw propulsion system enables high propulsive performance at a wide range of speeds.

The thermal insulation system of the LNG tanks adopts the proprietary Kawasaki Panel System developed in-house, which offers outstanding heat insulation performance for an LNG boil-off rate of no more than approximately 0.08% per day. The cargo tank section is protected by the double-hull and double-bottom design, so damage to the hull will not affect the integrity of the LNG tanks.

The bridge is designed with state-of-the-art electronic navigation equipment concentrated in one location for greater ease of operation as well as panoramic windows offering a 360-degree view of the outside.

*Note: * The dual fuel diesel (DFD) engine can use both oil and gas, whereas a conventional generator engine can only use oil for fuel. The propulsion system consists of multiple generator diesel engines and variable-speed propulsion motors. Either gas or oil is supplied to the engines to generate electricity, which drives the propulsion motors that power the propeller.*

Principal particulars

Length (o.a.):	299.90m
Length (b.p.):	286.00m
Breadth (mld.):	48.90m
Depth (mld.):	27.00m
Draft (mld.):	11.80m
DWT/GT:	82,287t/135,951
Cargo tank capacity:	177,277m³
(at -163°C, 100% capacity)	
Main propulsion system:	2 propulsion motors, 2 reduction gears
Speed:	Approx. 19.5kt
Complement:	38
Classification:	ClassNK
Registry:	Bahamas

To our readers

- Please notify us of any change in address by letter, telefax, or E-mail together with the old mailing label to ensure you continue to receive SEA-Japan.
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MHIMSB completes 83,000m³ type LPG carrier, LAUREL PRIME

Mitsubishi Shipbuilding Co., Ltd. (MHIMSB) completed construction of the LAUREL PRIME (HN: 2331), an LPG carrier with a tank capacity of 83,305m³, and delivered the vessel on December 28, 2018. This vessel is the 11th of the third generation LPGC series, which was developed based on the first and second generation LPGC series, with a total of 49 deliveries in the MHI Group. This new LPGC has been designed with the main features of environmentally-friendly, easy and flexible operation and maintenance and high reliability.

Higher propulsive performance with less vibration compared with the conventional LPGC was achieved by the advanced hull form, optimum design of the propeller, and the Mitsubishi Reaction Fin. The electronically controlled main engine has low fuel consumption and complies with NO_x limitation Tier II. Low sulfur fuel can be used to comply with the limitations of the SECA (SO_x Emission Control Area) and a Ballast Water Treatment System is installed onboard.

Various improvements are incorporated for effiicient and flexible cargo operation such as higher unloading rate by auxiliary cargo pumps, elimination of loading restrictions, cargo manifold arrangement suitable for various terminals, etc. In addition, necessary fittings are arranged to pass through the Neopanamax Locks.

Higher reliability was achieved using the IMO IGC-code type B independent tank newly developed based on the feedback from long experience, design knowhow accumulated through constructions of MOSS type LNG carriers and state-of-the-art structural analysis system MHIDILAM (Direct Loading Analysis Method).

Principal particulars

L (o.a.) x L (b.p.) x B x D x d (Summer): 230.0m x 219.0m x 36.6m x 21.65m x 11.575m
GT: 47,963
Cargo tank capacity: 83,305m³
Main engine: MAN Diesel & Turbo Marine Diesel Engine 7S60ME-C8.5 diesel x 1 unit
Output: 13,000kW x 100min⁻¹
Speed, service: 17.0kt
Classification: ClassNK

Mitsui E&S Shipbuilding delivers 19th neo66BC, AFRICAN BATIS

Mitsui E&S Shipbuilding Co., Ltd. (MES-S) completed and delivered the 66,000DWT type bulk carrier, AFRICAN BATIS (Hull No.: 1945), at its Tamano Shipyard on January 17, 2019, which is the 19th ship of neo66BC series with the following special features.

This vessel has four cranes and five cargo holds and retains the superior usability of Mitsui 56BC. This vessel is designed with deadweight of more than 66,000 tons and capacity of more than 82,800 cubic meters for loading various cargoes such as coal, ore, grain, as well as lengthy/heavy cargoes such as steel pipes and hot coils. Fuel oil consumption of this vessel is less than that of a conventional Supramax bulk carrier despite its upsizing.

Research and interviews with ship owners and operators, investigations on ports all over the world and present trade patterns suggest that the wide beam (over-Panamax) and shallow draft allow wide flexibility for operations and high transport effiiciency.

The new hull form maintains good performance under rough sea conditions as well as calm sea conditions and shows better maneuverability.

The hatch openings are the largest in this type of vessel for both length and width.

The main engine, Mitsui-MAN B&W 7S50ME-B9.3 diesel, complies with MARPOL NO_x restriction (Tier-II) for exhaust gas emissions and has superior fuel oil consumption over a wide range of outputs. The ship has low sulfur fuel oil tanks, which are designed for operation in ECA (Emission Control Areas) considering the strengthened restrictions for SO_x emissions.

The working environment of the crew has also been improved by noise reduction measures to comply with the new SOLAS Code on noise level on board ships.

Principal particulars

L (o.a.) x B x D: 199.99m x 36.00m x 18.45m
DWT/GT: 66,504t/38,238
Main Engine: Mitsui-MAN B&W 7S50ME-B9.3 diesel x 1 unit
Speed, service: about 14.5kt
Complement: 25
Classification: NK
Registry: Panama
Delivery: January 17, 2019

Sanoyas completes Panamax bulk carrier, ORMOS

Sanoyas Shipbuilding Corporation completed construction of the Panamax bulk carrier, ORMOS, at the Sanoyas Mizushima Shipyard and delivered to the owner, Hikari Navigation Co., on January 10, 2019. This is the 15th vessel of a series of the Sanoyas newly developed 82,000DWT type Panamax bulk carriers.

The vessel has larger cargo hold capacity and further improved fuel consumption by 10% compared with the previous 83,000DWT type featuring 10% improvement in fuel effiiciency from the existing design. The vessel achieves Phase 2 level of EEDI (Energy Effiiciency Design Index: grams CO_2 per ton nautical mile) regulation that will apply to ships contracted for building on or after January 1, 2013.

The vessel is equipped with low-speed and long-stroke electronically controlled main engine combined with a high-effiiciency propeller and associated energy saving devices such as the Sanoyas developed STF (Sanoyas-Tandem-Fin (patent); max. 6% energy saving) on the stern shell and highly effiicient appendages on the rudder, which also contribute to the reduction of CO_2 emissions.

Eco-friendly features include various countermeasures such as the main engine complying with the NO_x emission Tier II limit for the prevention of air pollution, dedicated low sulphur diesel oil tank to cruise in ECAs (Emission Control Areas), Ballast Water Treatment System, and fuel oil tank protection for the protection of marine environment. In addition, independent holding tanks for accommodation discharges, dirty bilge in holds and rainwater on the upper deck are provided.

Improvement of vessel maintenance includes access trunks to allow access from the upper deck to the double bottom even under laden conditions. Wooden furniture in the accommodation provides a more comfortable life for offiicers and crews on board the vessel, and safe maneuverability is achieved with organized arrangement and rear visibility in the wheelhouse.

Principal particulars

Owner: Hikari Navigation Co.
Hull No.: 1357
L (o.a.) x B x D x d: 229.00m x 32.24m x 20.20m x 14.668m
DWT/GT: 81,944t/43,380
Cargo hold capacity (grain): 96,597m^3
Speed, service: about 14.5kt
Main engine: MAN B&W 6S60ME-C8.2 diesel x 1 unit
MCO: 8,740kW
Complement: 25
Classification: ClassNK
Registry: Bahamas
Delivery: January 10, 2019

Oshima develops zero emission battery-driven ferryboat, e-Oshima

Oshima Shipbuilding Co., Ltd. has developed the e-Oshima, a 290GT type battery-driven ferryboat, which is now under construction for launching in April 2019. The e-Oshima is 35 meters long and has been designed as a ferryboat to ply between the Oshima shipyard and the opposite shore to carry visitors to Oshima Shipbuilding Co. The ferry boat can carry 50 persons, one bus, and four cars.

Two sets of azimuth-thrusters, which are driven by electric motors powered by the battery, are adoped for propulsion and facilitate berting and unberthing. The battery meets all electrical demand onboard the ferryboat. The battery has a capacity of 600kWh, which is enough to make several crossings. The battery drive is completely free from emissions and ensures a comfortable environment onboard the ferry with less noise and vibration.

Oshima Shipbuilding Co., Ltd. and MHI Marine Engineering, Ltd. have jointly developed an automatic ship navigation system for the ferry. The system incorporates excellent functions for course-keeping and speed control, collision/grounding prevention, and suport for berthing and unberthing. This automatic ship navigation system has been selected as one of the automated vessel projects for FY2018 promoted by Japan's Ministry of Land, Infrastructure, Transport and Tourism. Verification tests will be conducted to assess the system performance and safety in early 2019.

Principal particulars

L (o.a.) x B x D x d: abt. 35.00m x 9.60m x 3.80m x 2.60m
GT: 290 (JG)
Loading capacity: 50 persons
One bus & 4 cars, or 8 cars
Battery capacity: about 600kWh
Speed, service: Max. 10.0kt
Classification: JG (smooth water area, limited within 5 sea miles)
Registry: Japan (Saikai City, Nagasaki Pref.)
Completion: June 2019

Naikai completes 18,890DWT product tanker, KIRANA HASTA

Naikai Zosen Corporation completed construction of the KIRANA HASTA, an 18,890DWT white and black product tanker, for delivery to Apricot Maritime S.A. at the Innoshima Shipyard on December 26, 2018. The tanker has already been put into transport service for petroleum products of light and heavy oil on Southeast Asian routes.

The tanker has been designed with wide beam and shallow draught because the navigational draught of the tanker is limited to 7.20m in some areas. The cargo oil tank consists of 12 compartments including a slop tank. Double hull construction is employed for both side shell and bottom to protect the marine environment from the leakage of cargo oils after accidental damage. The same hull construction is applied to all the fuel oil tanks for security. The total capacity of the cargo oil tanks is approximately 23,265m^3, unloading of which is carried out by three electric screw pumps with a capacity 600m^3/h.

The hull form with wide beam and shallow draught has newly been developed to ensure both propulsive performance and maneuverability. Use of a large rudder provides excellent course keeping and ship turning even in ports with shallow waters. The tanker has two fuel oil tanks at the bow and stern. This arrangement enables to transfer of fuel oil weight to either of the tanks for the ship to maintain an even keel.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 157.98m x 149.98m x 27.90m x 11.20m x 7.20m
Main engine: Hitachi MAN B&W 7S35MC7.1 diesel x 1 unit
D.M.C.O: 4,900kW x 170min^{-1}
D.C.S.O: 4,165kW x 161min^{-1}
Speed, service: about 13.5kt
Complement: 25
Classification: ClassNK
Registry: Singapore
Completion: December 26, 2018

JSEA participates in NOR-SHIPPING 2019

The 27th NOR-SHIPPING 2019 event (The 27th International Shipping Exhibition) will take place at the Lillestrom Exhibition Centre in Lillestrom for four days from June 4 through June 7. This event is organized by the Norway Trade Fairs (NORGES VAREMESSE) and is sponsored by the Norwegian Shipowners' Association and organizations related to the maritime industry.

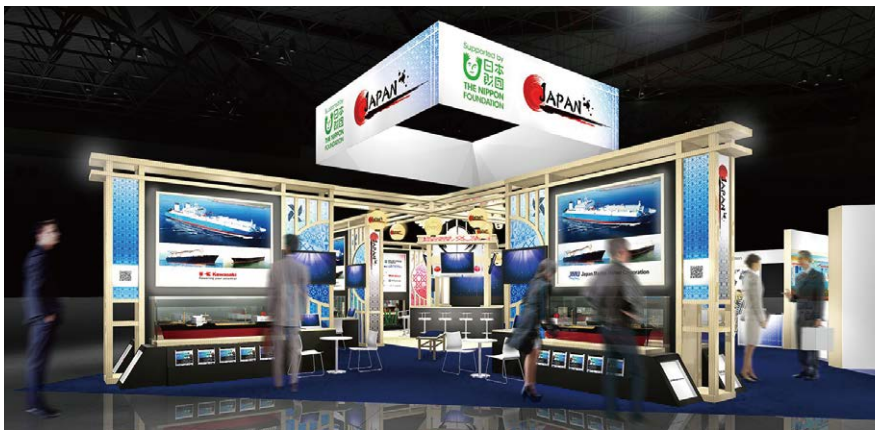
The Japan Ship Exporters' Association (JSEA), consisting of 10 Japanese shipbuilders, will participate in the exhibition with the financial support of The Nippon Foundation and in cooperation with The Shipbuilders' Association of Japan. JSEA will occupy a 220m^2 exhibition area to showcase Japanese shipbuilding technology. In particular, innovative ship hull forms and newly developed ship designs will be promoted with photographs, liquid crystal display (LCD) systems and a large multi-screen monitor system.

The JSEA will hold a lecture given by an international broker and presentations by Japanese exhibitors, which will begin at 13:00 on June 5 in Romerike, Thon Hotel Arena, (right next to The Lillestrom Exhibition Centre). The lecture theme will be "Shipping Market and Environmental Regulation" by Mr. Stephen Gordon of Clarkson Research Services Ltd.

The JSEA will also hold a reception at the Radisson Blu Scandinavia Hotel in Oslo on June 5 hosted by the Japanese Ambassador to Norway and the President of the JSEA. The reception will start at 19:00 with attendance restricted to only invited guests.

Exhibitors:

Imabari Shipbuilding Co., Ltd.
Japan Marine United Corporation
Kawasaki Heavy Industries, Ltd.
Mitsubishi Shipbuilding Co., Ltd.
Mitsui E&S Shipbuilding Co., Ltd.
Namura Shipbuilding Co., Ltd.
Oshima Shipbuilding Co., Ltd.
Sanoyas Shipbuilding Corporation
Shin Kurushima Dockyard Co., Ltd.
Sumitomo Heavy Industries Marine & Engineering Co., Ltd.



DAIWAN LEADER

Owner: Daiwan Leader S.A.
Builder: The Hakodate Dock Co., Ltd.
Hull No.: 906
Ship type: Bulk carrier
L (o.a.) x B x D x d: 179.97m x 30.00m x 14.05m x 9.822m
DWT/GT: 34,442t/21,574
Main engine: MAN B&W 6S46ME-B8.5 diesel x 1 unit
Speed, service: 14.4kt
Classification: ClassNK
Complement: 24
Completion: November 22, 2018

HOKKAIDO MARU

Owner: Kawasaki Kinkai Kisen, Ltd.
Builder: Imabari Shipbuilding Co., Ltd.
Ship type: Ro/Ro cargoship
L (o.a.) x B x D: 179.90m x 27.60m x 20.98m
DWT/GT: 12,400t/7,100
Main engine: 9S50ME-C8.5 diesel x 1 unit
Speed, service: 22.7kt
Classification: JG
Completion: March 1, 2019

HAKATA PRINCESS

Owner: Lepta Shipping Co., Ltd.
Builder: Onomichi Dockyard Co., Ltd./ Saiki Heavy Industries Co., Ltd.
Hull No.: 751
Ship type: Product/chemical tanker
L (o.a.) x B x D x d (ext.): 175.00m x 32.20m x 19.05m x 13.10m
DWT/GT: 49,999t/29,545
Main engine: MAN B&W 6S50ME-B9.5 diesel x 1 unit
Speed, service: 15.1kt
Classification: NK
Registry: Panama
Completion: October 29, 2018

MORNING EMMA

Owner: Trio Happiness, S.A.
Builder: Sasaki Shipbuilding Co., Ltd.
Hull No.: 703
Ship type: LPG carrier
L (o.a.) x B x D x d (ext.): 99.98m x 17.20m x 7.80m x 6.10m
DWT/GT: 4,983t/4,301
Main engine: MAKITA-MITSUI-MAN B&W 5L35MC6 diesel x 1 unit
Output: 2,750kW x 178min^{-1}
Speed, service: 13.4kt
Classification: BV
Registry: Panama
Completion: February 27, 2019

ASTORIA HARMONY

Builder: Shin Kurushima Toyohashi Shipbuilding Co., Ltd.
Hull No.: S-3717/S-6011
Ship type: Bulk carrier
L (o.a.) x B x D : 182.87m x 31.0m x 14.5m
DWT/GT: 38,500t/24,300
Main engine: 6S46ME-B8.5 diesel x 1 unit
Speed, service: 14.00kt
Classification: ClassNK
Registry: Panama
Completion: November 9, 2018

ONE GRUS

Owner: Basho Ship Holding LLC
Builder: Japan Marine United Corporation
Hull No.: 5123
Ship type: Container carrier
L (o.a.) x B (mld) x D (mld) x d (mld): 364.15m x 50.6m x 29.5m x 15.79m
DWT/GT: 138,611t/146,694
Main engine: WinGD W9X82 diesel x 1 unit
Speed, service: 22.5kt
Complement: 30
Classification: ClassNK
Completion: February 1, 2019