SEA-Japan

No. 379 Oct. - Nov. 2016

JMU completes 302,000DWT crude oil tanker, GEM NO.1

Japan Marine United Corporation (JMU) delivered the GEM NO.1, a 302,000 DWT Crude Oil Tanker, to GEM NO.1 MARITIME CORPORATION at the Ariake shipyard on June 30, 2016. This is the first vessel of the "G-Series" VLCC called G302T.

The principal particulars of the GEM NO.1 have been designed to provide flexibility for worldwide trade by achieving both compact hull form and large deadweight at shallow draft. The vessel has been developed drastically reducing fuel oil consumption together with CO_2 emission compared with existing vessels.

Excellent hull performance was achieved by using various and comprehensive technologies, which include advanced lower resistance hull form and optimized energy saving devices of the SSD (Super Stream Duct), Surf-Bulb (Rudder Fin with Bulb) and ALV-Fin (Advanced Low Viscous Resistance Fin). Furthermore, the unique bow shape, called the "Ax-Bow," gives better performance in waves under the laden condition.

The vessel's fuel oil consumption was further improved by a MAN Diesel & Turbo model G-type electronically controlled marine diesel engine, which complies with MARPOL NO_x regulation (Tier II), and a high efficiency propeller.

To ensure safety and maintenance, the IMO Performance Standard for Protective Coatings (PSPC) is applied for the cargo oil tanks and ballast water tanks. The vessel is also designed to comply with future environmental rules and regulations by installing the Ballast Water Management System, providing an inventory list of hazardous materials, and other features.

Principal particulars

L (o.a.) x B x D x d:	330.0m x 60m x 29.35m x 21.55m
DWT/GT:	302,652t/156,501
Main engine:	MAN B&W 7G80ME-C9.2 diesel x 1 unit
Speed, service:	15.80kt
Complement:	34
Classification:	ABS/CR

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MHI completes 11,000GT cargo/passenger ship, OGASAWARA MARU

Mitsubishi Heavy Industries, Ltd. (MHI) delivered the third OGASAWARA MARU, an 11,000GT cargo-passenger ship, to the co-owners, Japan Railway Construction, Transport and Technology Agency and Ogasawara Kaiun Co., Ltd. on June 17, 2016. The vessel was designed and built at Shimonoseki Shipyard & Machinery Works of MHI, and is now going into service between Tokyo and Chichijima in the Ogasawara Islands. Since the Ogasawara Islands were registered as a world natural heritage site in June 2011, the number of tourists has increased rapidly. This increased demand has promoted the construction of a bigger and faster vessel than the second OGASAWARA MARU.

The new OGASWARA MARU employs the conventional two-engine and two-shaft propulsion system to retain high reliability and redundancy for safety in the greater coasting service. This new ferry has been enlarged to 1.6 times in gross tonnage from the former vessel, and its service speed has been increased to 23.8 knots from 22.5 knots despite the same main engine output. The newly designed hull form, CPP with a hub vortex fin cap, and reaction rudders allow greater size with higher speed and energy saving.

Private and public spaces for passengers are designed with the motif of animals and plants of the Ogasawara Islands. Total accommodation capacity for passengers is increased from 769 persons to 894 persons. For better comfort of passengers, many private rooms are provided compared with the former vessel. Public spaces such as restaurants, observation lounge, mini-saloon and shops allow the passengers to enjoy cruising.

Barrier-free facilities are provided for embarkation, and an elevator is provided between the passenger accommodation decks.

Principal particulars

L (o.a.) x L (b.p.) x B (mld) x D (mld) x d (mld): 150.00m x 145.00m x 20.40m x 12.20m x 5.70m
Gross tonnage: 11,035
Speed, service: 23.8kt
Cargo loading capacity: 73 10ft-containers
Complement: 894 passengers 45 crew members
Main diesel engines: 2 units
Controllable pitch propellers: 2 units
Registry: Japan
Port of registry: Tokyo

Naikai completes 275GT passenger/car ferry, NANAURA MARU

Naikai Zosen Corporation completed construction of the 275GT passenger/car ferry NANAURA MARU for the owner, JR Miyajima Ferry Co. Ltd, on September 9, 2016, The ferry is now plying between JR Miyajima-Guchi Pier (on Japan's Main Island) and Miyajima Ferry Terminal (on Miyajima Island off Hatsukakichi City, Hiroshima).

Passengers and automobiles are embarked and disembarked through rampway doors provided at the bow and stern. The upper deck of the ferry conforms to barrier-free regulations. Flat passages designed with no steps are provided from the bow rampway door through to the stern rampway door. Moreover, multi-purpose cabins and multi-utility toilets can facilitate embarkation of passengers using wheelchairs.

The ferry uses a controllable pitch propeller for increased ship maneuverability. The propeller blades are made of CFRP (carbon fiber-reinforced plastic). The CFRP propeller is about 60% lighter than an ordinary propeller, and is expected to reduce inertia moment and noise generation.

Principal particulars

L (o.a.) x B x D x d: 38.15m x 10.00m x 3.87/3.87m (at upper/boarding deck) x 2.65m (at scantling draught)
DWT (scantling draught)/GT: 101t/268
Passenger car loading capacity: 6 units
Passengers: 460 people with 6 cars, 800 people without cars
Complement: 3
Main engine: Yanmar 6EY22AW geared diesel x 1 unit
MCO: 736kW x 800/339min^{-1}
NCO: 626kW x 800/339min^{-1}
Speed, service: 9.0kt
Classification: JG

Oshima completes 56,000DWT Handymax bulker, FEDERAL TAKASE

Oshima Shipbuilding Co., Ltd. delivered the FEDERAL TAKASE, a 56,000DWT type bulk carrier, to Federal Trident Ltd. on April 14, 2016. This vessel has five holds, all of which have wide opening type hatch covers to facilitate cargo-handling efficiency. The vessel is suitable to carry various cargoes, such as grain, ore, coal, hot coils, dangerous products, and other bulk cargoes.

The FEDERAL TAKASE has been designed according to ClassNK's ice class notation IC-IS for vessels trading in ice. Moreover, the requirements of notation IB-IS are additionally applied to the vessel for reinforcement of the forward region of the ice belt of the hull and propeller strength. The vessel is also provided with measures for low temperature operation during ice navigation. A set of Advanced Flipper-Fins, Rudder bulb, low friction paint and an electronically controlled engine are installed to improve the fuel consumption. The Seaworthy Bow that demonstrates excellent seaworthiness is also adopted to maintain speed performance under rough weather conditions.

This vessel complies with ClassNK's environmental protection notations, such as EA +BILGE, GW. In addition, IMO recycling of ships is considered, and a ballast water treatment system is installed.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d:
189.99m x 185.79m x 32.26m x 17.87m x 12.578m
DWT/GT: 55,178t/31584
Loading capacity: 71,177m^3
Main engine: Kawasaki MAN B&W 6S50ME-B9.3 diesel x 1 unit
MCR: 7,260kW at 99.0rpm
Speed, service: 14.3kt
Classification: NK
Completion: April 14, 2016

Sanoyas completes SUPRAMAX bulker, NORD CHESAPEAKE

Sanoyas Shipbuilding Corporation delivered the SUPRAMAX bulk carrier, NORD CHESAPEAKE (HN: 1339), at Sanoyas Mizushima Shipyard on July 12, 2016. This is the second vessel of the new series of the Sanoyas 60,000DWT-type SUPRAMAX bulk carriers. The vessel has a large deadweight and achieves highest fuel efficiency for a ship of less than 200m length. The optimized hull form to improve the performance under actual sea conditions contributes to better overall performance, with less fuel consumption and low exhaust emissions.

For increased propulsion efficiency, the vessel is equipped with a low-speed and long-stroke electronically controlled main engine combined with a high-efficiency propeller, and CO_2 reduction can be achieved by energy saving devices such as the STF (Sanoyas-Tandem-Fin (patent) max. 6% energy saving) on the stern shell and highly efficient appendages on the rudder.

Considering eco-friendly features, various measures have been taken for environmental conservation, which include the main engine complying with the NO_x emission Tier II limit to avoid air pollution, dedicated low sulphur diesel oil tank to cruise in ECAs (Emission Control Areas), BWTS (Ballast Water Treatment System), and fuel oil tank protection to prevent oil leakage. In addition, independent holding tanks are provided to store accommodation discharges, dirty hold bilge, and rainwater on the upper deck.

The vessel has five cargo holds with maximized hatch openings to load various cargoes such as grain, ore, coal, hot coils and steel pipes. Cargoes can be handled with four 31t deck cranes. Access trunks provided between the upper deck and double bottom can improve maintenance work even under the laden condition.

Principal particulars

L (o.a.) x B x D x d (Summer): 199.99m x 32.24m x 18.38m x 12.868m
DWT/GT: 60,447t/34,164
Cargo hold capacity: 77,067m^3 (grain)
Main engine: MAN B&W 6G50ME-B9.3 diesel x 1 unit
MCO: 7,740kW
Speed, service: about 14.3kt
Complement: 25
Registry: Panama
Classification: ABS
Delivery: 12th July, 2016

Namura completes 115,000DWT type Aframax tanker, IONIC ANASSA

Namura Shipbuilding Co., Ltd. delivered the IONIC ANASSA, a 114,718DWT crude oil carrier built at its Imari Shipyard & Works, to Laurel World Maritime S.A. on June 30, 2016. This is the fourth Aframax tanker built by Namura, which is compliant with the IACS Common Structural Rules.

The vessel was constructed to conform to the latest requirements of international regulations such as IMO PSPC-COT and PSPC-WBT for corrosion protection of cargo oil tanks and water ballast tanks to increase safety of the vessel.

The propulsion performance has been improved with energy saving devices independently developed by Namura, the Namura flow Control Fin (NCF), Rudder Fin attached to the stern, and low-friction type antifouling paint applied to the outside shell. The electronically controlled main engine contributes to reduction of fuel oil consumption. The vessel is also equipped with the main engine and generator engine compliant with the Annex VI of MARPOL 73/78 regulations (Tier II) to reduce NO_x emissions.

The cargo handling system of the vessel consists of three large capacity cargo oil pumps, which enable loading/unloading of three grades of cargo oils, and the automatic unloading system facilitates the unloading operations.

The ballast water treatment system to control the quality of ballast water is equipped for protection of the marine environment prior to the enforcement of the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

Principal particulars

L (o.a.) x B (mld) x D (mld) x d (mld): 249.97m x 44.00m x 21.20m x 14.80m
DWT/GT: 114,718t/63,502
Main engine: MAN B&W 6G60ME-C9.2 diesel x 1 unit
Speed, service: about 14.4kt
Complement: 30 + 6 (Workers)
Registry: Marshall Islands
Classification: ABS

Preventive maintenance support

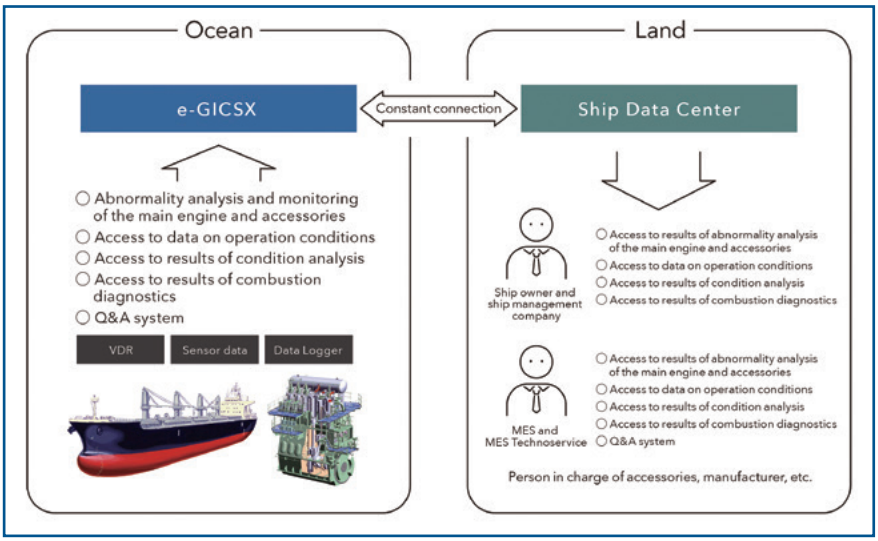
MES starts operation of CMAXS e-GICSX engine monitoring system

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) and its wholly owned subsidiary MES TECHNOSERVICE CO., LTD. (Head Office: Tamano City, Okayama) have conducted research and development on the Next Generation Condition-Based Engine Monitoring System (service name: CMAXS e-GICSX) for Mitsui-MAN B&W diesel ship engines, in collaboration with Nippon Kaiji Kyokai (NK, or ClassNK) and commenced operations in April, 2016.

After the acceptance of an order from Mitsui O.S.K. Lines, Ltd. (MOL; Head Office: Minato-ku, Tokyo), the CMAXS e-GICSX system was installed on a methanol tanker equipped with an electronically controlled dual fuel main engine.

The CMAXS e-GICSX system provides early accurate detection of abnormalities using sophisticated algorithms that can analyze, monitor, and correlate big data, including data collected from multiple sensors installed in the engine as well as navigational data, such as sea and weather conditions. By sharing the abnormalities found on board with the performance diagnosis analyzed on shore, the CMAXS e-GICSX system can also provide performance analysis with higher accuracy.

Mitsui Engineering & Shipbuilding and MES TECHNOSERVICE will continue to provide an advanced after-sales service that meets the needs of customers for various devices and equipment, including diesel engines, providing greater customer satisfaction.

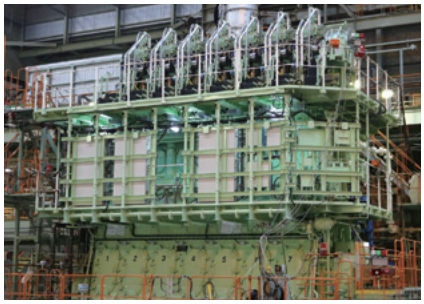


MES completes world's first ME-GI Ethane for LEG carriers

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) recently completed construction of the world's first ethane-fueled electronically controlled gas injection diesel engine called ME-GI-Ethane. The ME-GI is a large two-cycle low-speed diesel engine that has a high thermal efficiency, as well as dual fuel capability that can use a combination of natural gas (LNG) and heavy oil. Mitsui's ME-GI will be employed in two projects for engines that can be fueled with a combination of LNG and heavy oil. However, the subsequently ordered ME-GI-Ethane can be fueled using a combination of ethane and heavy oil, instead of LNG. This is the world's first ME-GI-Ethane engine completed by MES.

Similar to LNG, ethane is a more eco-friendly fuel than heavy oil. As shale gas has developed and become widespread, the production of ethane has increased. Ethane is attractive as a fuel with economic efficiency and as an alternative marine fuel to LNG, which can be used instead of heavy oil, the current dominant fuel.

Mitsui MAN B&W 7G50ME-C9.5-GI-Ethane is scheduled for installation in three LEG (liquefied ethylene gas) carriers (36,000m^3, one engine and one propeller), which will be constructed by Sinopacific Offshore & Engineering, a Chinese shipyard, for Hartmann Schiffahrt, a German ship owner, and Ocean Yield, a Norwegian ship owner.



MES has already prepared a system to meet the diverse range of fuel needs, such as the ME-GI (LNG and heavy oil), the ME-GI-Ethane (ethane and heavy oil), and the ME-LGI (methanol or another fuel and heavy oil). MES will continue to offer propulsion systems to its customers that are both environmentally and economically friendly.

Dual fuel diesel engines available from MES

Engine model	Compatible fuels	Current engine building projects
ME-GI	LNG & heavy fuel oil	(2 engines for LNG fueled ships & 4 engines for LNG carriers)
ME-GI-Ethane	Ethane & heavy fuel oil	1 project, 3 engines for LEG (liquefied ethylene gas carrier)
ME-LGI	Methanol & heavy fuel oil, Ethanol & heavy fuel oil, LPG & heavy fuel oil, or Dimethyl ether & heavy fuel oil	1 project (3 engines for methanol carriers)

JSEA participated in SMM 2016, German International Maritime Exhibition

JSEA participated in the SMM 2016 International Maritime Exhibition (organized by Hamburg Messe und Congress GmbH) held from September 6 through 9 at Hamburg Messe in Hamburg with a financial grant from the Nippon Foundation.

In this year's SMM, the 27th edition, Greece, India, Iran and Malaysia had their national booths for the first time. The event had more than 2,200 exhibitors from 66 countries, and attracted as many as 50,000 visitors. SMM 2016 newly had Hall A5 dedicated to environmental technology under the theme of "Green." The whole area of the exhibition space was 93,000m^2, the largest ever in the SMM history.

For JSEA, this was the second occasion following the last SMM it jointly took part with The Cooperative Association of Japan Shipbuilders. This time, JSEA set up a "Japanese Shipbuilding Stand" for unified exhibition by four Japanese shipbuilders — Japan Marine United Corporation, Namura Shipbuilding Co. Ltd., Oshima Shipbuilding Co. Ltd., and Sanoyas Shipbuilding Corporation.

The Japanese shipbuilders demonstrated mainly new ship types and highly fuel-efficient next-generation ships to many visitors including European shipowners. The exhibitors thereby facilitated mutual communication with foreign visitors.

MG EARTH

Owner: Cardinal Maritime S.A.
Builder: Imabari Shipbuilding Co., Ltd.
Ship type: Bulk carrier
L (o.a.) x B x D: 228.95m x 35.0m x 14.45m
DWT/GT: 66,593t/45,252
Main engine: 6S60ME-C7.1 diesel x 1 unit
Speed, service: 14.50kt
Classification: NK
Completion: June 17, 2016

RB JAKE

Owner: RB Shipping Ltd
Builder: Japan Marine United Corporation
Hull No.: 5081
Ship type: Bulk carrier
L (o.a.) x B (mld) x D (mld) x d (mld): 229.0m x 32.26m x 20.0m x 14.45m
DWT/GT: 81,039t/43,278
Main engine: MAN B&W 6S60ME-C diesel x 1 unit
Speed: 14.5kt
Complement: 25
Classification: BV
Completion: June 3, 2016

NORTH SEA

Owner: Indigo Marine Shipping S.A.
Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
Hull No.: 1384
Ship type: Tanker
L (b.p.) x B x D: 224.64m x 42.00m x 21.45m
DWT/GT: 106,200t/57,164
Main engine: Mitsui MAN B&W 6S60ME-C8 diesel x 1 unit
Speed, service: about 15.0kt
Classification: LR
Completion: July 27, 2016

MARIA TOPIĆ

Owner: Sumitomo Corporation
Builder: Onomichi Dockyard Co., Ltd.
Hull No.: 714
Ship type: Bulk carrier
L (o.a.) x B x D x d (ext.): 199.90m x 32.26m x 18.60m x 13.00m
DWT/GT: 60,155t/34,905
Main engine: Mitsui-MAN B&W 6S50ME-B9.3 diesel x 1 unit
Speed, service: 14.5kt
Registry: Majuro (Marshall Islands)
Classification: LR
Completion: June 14, 2016

PLUMERIA CORAL

Owner: Coral Canal S.A.
Builder: Sasaki Shipbuilding Co., Ltd.
Hull No.: 692
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: 5,016t/4,289
Main engine: Hanshin Diesel MAN B&W 5L35MC diesel x 1 unit
MCO: 2,750kW x 178min^{-1}
Speed, service: 13.40kt
Registry: Panama
Classification: BV
Complement: 18
Completion: April 30, 2016

BRISTOL TRADER

Owner: Ratu Shipping Co., S.A.
Builder: Shin Kurushima Dockyard Co., Ltd.
Hull No.: S-5861
Ship type: Chemical tanker
L (o.a.) x B x D: 179.53m x 27.4m x 16.3m
DWT/GT: 35,863/21,151
Main engine: Mitsui-MAN B&W 6S50ME-B9.3 diesel x 1 unit
Speed, service: 15.0kt
Registry: Philippines (Manila)
Classification: BV
Completion: July 12, 2016