SEA-Japan

No. 385 Oct. - Nov. 2017

Sanoyas completes Panamax bulk carrier, MONDIAL SUCCESS

Sanoyas Shipbuilding Corporation delivered the Panamax bulk carrier, MONDIAL SUCCESS, to Sundia One Shipping S.A. at the Mizushima Shipyard on June 9, 2017. The vessel is the ninth in the 82,000DWT Panamax bulk carrier series.

The vessel has larger cargo hold capacity and further improved fuel consumption by 10% compared with the previous 83,000DWT type. The vessel also satisfies the Phase 2 level of the EEDI (Energy Efficiency Design Index) regulations that apply to shipbuilding contracts concluded on or after January 1, 2013.

The MONDIAL SUCCESS has higher propulsion efficiency using a low-speed and long-stroke electronically controlled main engine, combined with a high-performance 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 efficient appendages on the rudder, which also contribute to reduced CO_2 emissions.

Various eco-friendly features such as the main engine compliant with the NO_x emission Tier II limit for prevention of air pollution, and the Ballast Water Treatment System and fuel oil tank protection for protection of the marine environment are incorporated. In addition, independent holding tanks for accommodation discharges, dirty hold bilges and rainwater on the upper deck are provided.

For improvement of vessel maintenance, access trunks are arranged to allow access from the upper deck to the double bottom even under the laden conditions. Wooden furniture in the accommodation increases officer/crew comfort and safe maneuverability is achieved with organized arrangement and rear visibility in the wheelhouse.

Principal particulars

Ship type:	Panamax bulker
Hull No.:	1352
L (o.a.) x B x D x d:	229.00m x 32.24m x 20.20m x 14.668m
DWT/GT:	82,010t/43,368
Cargo hold capacity:	96,597m^3 (grain)
Main engine:	MAN B&W 6S60ME-C8.2 diesel x 1 unit
MCO:	8,740kW
Speed, service:	about 14.5 knots (at C.S.O. with 15% sea margin)
Complement:	25
Registry:	Marshall Islands
Classification:	NK
Delivery:	June 9, 2017

For further information please contact:
Website: http://www.jsea.or.jp
JAPAN SHIP EXPORTERS' ASSOCIATION
15-12, Toranomon 1-chome, Minato-ku, Tokyo 105-0001 Tel: (03) 6206-1661 Fax: (03) 3597-7800 E-Mail: postmaster@jsea.or.jp

JMU completes 302,000DWT crude oil tanker, FRONT EARL

Japan Marine United Corporation (JMU) delivered the FRONT EARL, a 302,000DWT crude oil tanker, to Front Earl Inc. at the Ariake shipyard on July 27, 2017. This is the fifth vessel of the G-Series VLCC called G302T.

The principal particulars of the FRONT EARL 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 by drastically reducing fuel oil consumption together with CO_2 emissions compared with existing vessels.

Excellent hull performance was achieved by using various and comprehensive technologies, which include the 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 fuel oil consumption was further improved by a MAN Diesel & Turbo model G-type electronically controlled marine diesel engine, which complies with the MARPOL NO_x regulation (Tier II), and a high efficiency propeller.

To ensure safety and maintenance, the IMO Performance Standard for Protective Coatings (PSPC) are applied to 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: 303,121t/156,391
Main engine: MAN B&W 7G80ME-C9.2 diesel x 1 unit
Speed, service: 15.80kt
Complement: 28
Classification: ABS

KHI delivers 82,423m³ LPG carrier, CRYSTAL RIVER

Kawasaki Heavy Industries, Ltd. delivered the CRYSTAL RIVER (HN: 1732), a liquefied petroleum gas (LPG) carrier, for Astomos Energy Corporation. This is the 55th LPG carrier and the 6th LPG vessel of the same type built by the company.

This vessel adopts Kawasaki's uniquely developed bow shape called SEA-Arrow, which significantly improves propulsion performance by minimizing bow wave resistance.

The main engine powering the vessel is an energy-efficient, electronically-controlled, ultra-long-stroke, two-stroke low-speed diesel engine. In addition, the Kawasaki rudder bulb system with fins (RBS-F) and the semi-duct system with contra-fins (SDS-F) contribute to reducing fuel consumption.

Four independent cargo tanks are installed in the cargo holds for carrying liquefied petroleum gas. The tanks are designed to provide optimal thermal insulation and absorb low-temperature contraction. The cargo tanks are made with special cryogenic steel for loading LPG with a minimum temperature of minus 46°C. The tanks are wrapped in urethane foam for thermal insulation.

The vessel is designed to be fully compliant with the New Panamax requirements and can navigate the newly expanded Panama Canal, which was completed in June 2016.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 229.90m x 226.00m x 37.20m x 21.00m x 11.20m
DWT/GT: 54,171t/46,793
Hold capacity: 82,423m³
Main engine: Kawasaki-MAN B&W 7S60ME-C8.2 diesel x 1 unit
Complement: 35
Registry: Panama
Classification: ABS
Delivery: July 14, 2017

NAMURA completes 82,000DWT type bulker, SAKIZAYA LEADER

Namura Shipbuilding Co., Ltd. delivered the SAKIZAYA LEADER, a 81,691DWT bulk carrier, to Sakizaya Leader S.A. at its Imari Shipyard & Works on July 6, 2017. This is the ninth vessel of the 82,000DWT type bulk carrier series built by Namura.

This vessel is designed for carring grain, coal, iron ore, etc. as a bulk carrier with maximized loading capacity and complies with common structural rules. High propulsion performance and reduction of fuel oil consumption are achieved by energy saving devices, the high efficiency propeller, reduced wind resistance type superstructure and the electronically controlled main engine.

Large-capacity ballast pumps and the independent ballast stripping line are provided to improve ballasting and deballasting performance. The vessel has several types of holding tanks to consider port regulations and for the management of discharging gray water, sewage, bilge water after cargo hold cleaning, etc. For environmental safety, the main engine and generator engines of the vessel comply with the Annex VI of MARPOL 73/78 regulations to reduce NO_x emissions.

The centralized fresh water cooling system is adopted for the machinery space equipment to ease maintenance. The ballast water treatment system to control the quality of ballast water is equipped for protection of the marine environment prior to enforcement of the International Convention for the Control and Management of Ships' Ballast Water and Sediments. The IMO Performance Standard for Protective Coatings (PSPC) is applied to the water ballast tanks to protect from corrosion for increased safety of the vessel.

Principal particulars

L (o.a.) x B (mld) x D (mld) x d (mld):	228.99m x 32.26m x 20.10m x 14.50m
DWT/GT:	81,691t/44,425
Main engine:	MAN B&W 6S60ME-C8.2 diesel x 1 unit
M.C.O.:	9,660kW x 89.0 min^{-1}
Speed, service:	about 14.1kt
Complement:	25
Registry:	Panama
Classification:	LR

For LNG-fueled ships

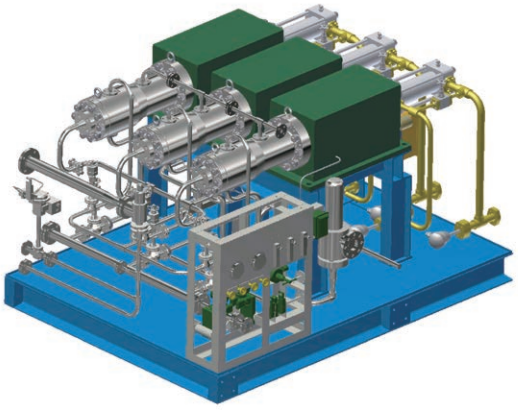
MES markets high-pressure pumps for LNG fuel supply systems

Mitsui Engineering & Shipbuilding Co., Ltd. (MES) has developed a high-pressure reciprocating pump (referred to as the pump) for fuel gas supply systems (FGSS) for use on LNG carriers and LNG-fueled ships. The pump was developed in cooperation with Kaji Technology Corporation (president: Takashi Nakazawa; headquartered in Sakai-shi, Osaka), which became a subsidiary of MES in March 2017.

MES had already commenced sales of a high-pressure gas compressor for gas injection diesel engines (ME-GI), the main engines used on LNG carriers as of two years ago. MES has now added this pump for use in FGSS on LNG carriers and LNG-fueled ships to its product lineup in addition to the existing high-pressure gas compressor.

A distinctive feature of the new pump is that the drive section of the pump uses a hydraulic mechanism that enables independent control of each cylinder. With conventional crank-type pumps, ships required an additional spare pump to provide redundancy in case of failure. The adoption of a hydraulic drive mechanism for the new pump design means that operators can utilize two regular cylinders for normal use and reserve one cylinder as a spare to ensure redundancy. This has enabled the supply of FGSS for ME-GI engines at lower initial cost compared with conventional motor-driven crank-type pumps. A performance test of the pump using LNG at the MES Tamano Works was completed in March 2017, and sales of the new pump commenced in April.

LNG is gaining attention as a more eco-friendly ship fuel for the future to respond to ever-toughening environmental restrictions. With the addition of this pump, MES has now established a full product lineup to supply environmentally friendly and economically superior ME-GI engines as a set, together with its FGSS high-pressure gas compressors and high-pressure pumps.



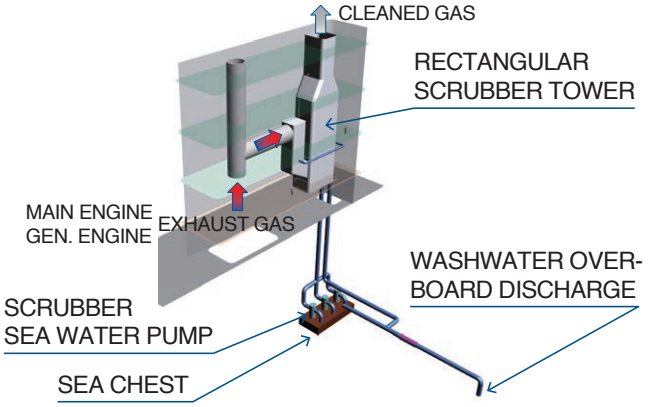
MHI and MHPS jointly develop marine SO_x scrubber

World's first rectangular design offers outstanding purification capacity and space savings for large-scale ships

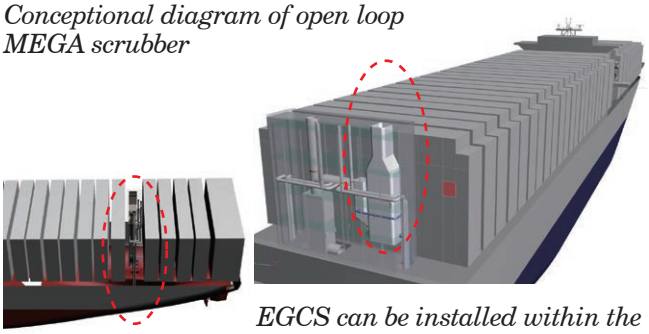
Mitsubishi Heavy Industries, Ltd. (MHI) and Mitsubishi Hitachi Power Systems, Ltd. (MHPS) have jointly developed a large-scale rectangular marine scrubber that efficiently removes sulfur oxides (SO_x) from the exhaust gases emitted by marine diesel engines. The scrubber was developed based on MHPS's comprehensive flue-gas treatment technologies developed through desulfurization systems for thermal power plants, and leveraging MHI's expertise in marine engineering. The adoption of a rectangular box-shape configuration offers outstanding ease of installation in small spaces, and excellent emissions treatment for high-output engines used on large-scale container ships.

The new scrubber was developed in response to stringent new SO_x emissions regulations that come into effect globally from 2020. The system can purify exhaust gas emitted from inexpensive heavy fuel oil to a level equivalent to more expensive low-sulfur fuels, and has been designed to allow easy installation on existing ships.

The new SO_x scrubber uses seawater as its cleaning agent, adopting a simple open-loop system in which seawater intake is sprayed directly on the exhaust gas. Effective use of alkaline seawater eliminates the need for chemicals or additional processing. Further, because the horizontal and vertical dimensions of the rectangular scrubber tower can be freely modified, volume efficiency is higher than previous cylindrical scrubbers, providing space savings. The equipment configuration is simple, allowing easy installation not only in newly commissioned ships but in retrofitted vessels as well.



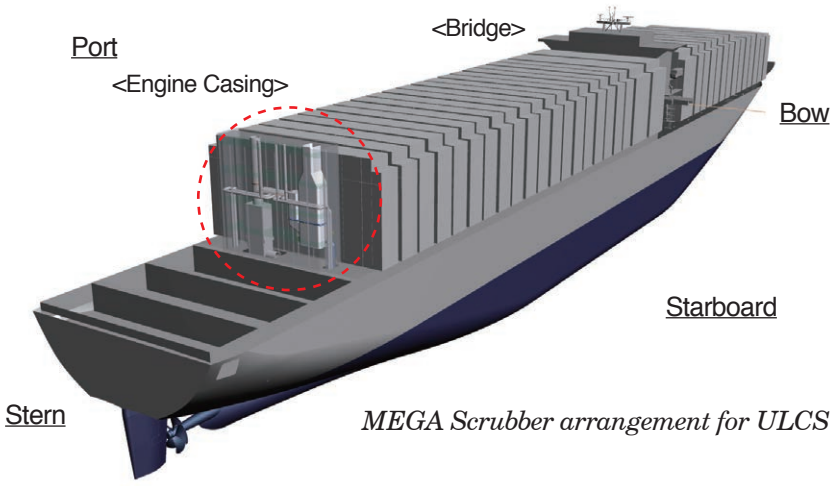
Conceptional diagram of open loop MEGA scrubber



EGCS can be installed within the "dead area" of engine casing.

The scrubber main unit can be set into the upper deck engine casing, so does not encroach on the ship load space. This is particularly beneficial for large-scale container ships that use a twin island design structure. Going forward, MHPS will apply its expertise in local procurement and construction accrued through flue-gas treatment systems for land installations to the new marine scrubber, and will also focus on reducing costs.

Since 2015, the International Maritime Organization (IMO) has required sulfur content of less than 0.1% for marine fuels in designated emission control areas (ECA). However, this requirement will expand to all sea areas required sulfur content of less than 0.5% from 2020 when new regulations are introduced. Under the new regulatory structure, the use of cheaper fuels with 3.5% sulfur content will still be allowed if equipment is installed that offers proportionate emissions reductions. This trend has precipitated the move to commercialize SO_x scrubbers that are compliant with the new regulations.



MEGA Scrubber arrangement for ULCS

The Large-scale Rectangular Marine Scrubber was unveiled by MHI and MHPS at the Nor-Shipping 2017 maritime trade show in Oslo, Norway (May 30 - June 2). Deliveries of the scrubber are expected before 2020 and, in preparation, both companies will seek certification from selected countries while conducting extensive tests on ships. Sales offerings will focus on installations for both newly commissioned ships and ships already in service. This includes ships constructed by MHI as well as ships built by other shipyards.

Naikai completes Ro-Ro ship, NISSHO MARU

Naikai Zosen Corporation has completed the NISSHO MARU, a roll-on/roll-off type cargoship of 10,109GT, at the Setoda Shipyard for Kagoshima Senpaku Kaisya, Ltd. and the ship is now chartered by Nitto Kaiun Corporation.

The ship has been designed exclusively to carry passenger cars, trailers, and heavy vehicles. The vehicles are accommodated on six car decks, one of which is designated for trailers and heavy vehicles. Vehicles go aboard through the shore-ramp at the stern and move to assigned bays on the car decks via inboard ramps.

The ship's hull form, which was designed based on repeated water tank tests, achieves superior ship speed, and energy-saving devices are installed for increased fuel efficiency, which include "STEP" (Spray Tearing Plates) and an energy-saving rudder with a bulb.

The main engine is an electronically controlled diesel engine (ME-C model) that can improve fuel consumption and combustion conditions under low engine load operation. Ship stability during navigation is maintained with anti-rolling tanks. Bow and stern thrusters facilitate berthing and unberthing.

Principal particulars

L (o.a.) x L (b.p.) x b x D x d: 159.90m x 150.00m x 25.00m x 23.06m x 6.55m
GT: 10,109
Vehicle loading capacity
52 units of trailers (13m L x 2.5m W)
900 units of passenger cars (4.78m L x 1.77m W)
Main engine: Hitachi-MAN B&W 7S50ME-C8.5 diesel x 1 unit
MCO: 10,540kW x 125.4min^{-1}
NCO: 8,960 kW x 118.8min^{-1}
Speed, service: about 20.7kt
Speed, max. trial: 22.723kt
Registry: Nagoya, Japan
Classification: NK

Kanda Shipbuilding begins operation of new floating dock

Kanda Shipbuilding Co., Ltd. has started full operation of a new floating dock capable of repairing 4,000GT class vessels at its Wakaba Works. The new floating dock has larger dimensions and GT capacity than the predecessor, and allows docking of 4,000GT class tankers, which are the standard type operated for coastal service in Japan. The new floating dock is 120m long and 22m wide and was built for replacement of the old Floating Dock No. 1 of the Wakaba Works on April this year.

Kanda Shipbuilding has been revamping its shipbuilding and shiprepair facilities during the last ten years to cope with requirements for international rules and enlargement of ships, which include expansion of a building berth and construction of a new painting shop compliant with IMO Performance Standard for Protective Coatings (PSPC) for dedicated seawater ballast tanks as well as replacement of the Floating Dock No. 1.

The company operates two shipyards, the Kawajiri Works for newbuildings and ship repair and the Wakaba Works for exclusively ship repair. The former has two building docks (up to 32,000GT) and one floating dock (for ship repair up to 25,000GT), and the latter, two floating docks (up to 4,000GT).

In yearly ship repair, the Kawajiri Works has conducted ship repair of about 40 vessels including ferries and cement carriers, and the Wakaba Works carried out repair of 130 various types such as tugboats, ferries, tankers, chemical ships, and cement carriers.

PRINCESS PACIFIC

Owner: Oshima Shipping S.A.
Builder: Imabari Shipbuilding Co., Ltd.
Ship type: Wood chip carrier
L (o.a.) x B x D: 199.96 x 32.24 x 22.9
DWT/GT: 49,608t/41,281
Main engine: 6S50ME-B9.3 diesel x 1 unit
Speed, service: 14.5kt
Classification: NK
Completion: August 23, 2017

LOWLANDS DAWN

Owner: CLdN Cobelfret Pte. Ltd.
Builder: Oshima Shipbuilding Co., Ltd.
Hull No.: 10822
Ship type: Bulk carrier
L (o.a.) x B x D x d(ext.): 234.98m x 38.00m x 19.50m x 14.241m
DWT/GT: 93,500t/49,534
Main engine: Kawasaki MAN B&W 6S60ME-C8.2 diesel x 1 unit
Speed, service: 14.30kt
Registry: Singapore
Classification: NK
Completion: June 23, 2017

WISDOM VENTURE

Owner: Acclaim Shipping Limited
Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
Hull No.: 1388
Ship type: Tanker
L (p.p.) x B x D: 228.97m x 44.00m x 21.8m
DWT/GT: 112,000t/60,200
Main engine: Mitsui MAN B&W 6G60ME-C9.2 diesel x 1 unit
Speed, service: about 15.2kt
Classification: LR
Completion: May 25, 2017

SE MARINE

Owner: SE Carrier Corporation
Builder: Kanda Shipbuilding Co., Ltd.
Hull No.: 553
Ship type: Open hatch cargo ship
L (o.a.) x B x D x d (ext.): 179.9m x 28.40m x 14.25m x 10.026m
DWT/GT: 33,173t/21,265
Main engine: MAN B&W 6S46MC-C8.2 diesel x 1 unit
Speed, service: 14.0kt
Registry: Panama
Classification: NK
Completion: June 16, 2017

GEM NO. 3

Owner: GEM No. 3 Maritime Corporation
Builder: Onomichi Dockyard Co., Ltd.
Hull No.: 733
Ship type: Product tanker
L (o.a.) x B x D x d (ext.): 219.00m x 38.00m x 19.50m x 13.80m
DWT/GT: 79,920t/44,389
Main engine: Mitsui MAN B&W 6S60ME-C8.5 diesel x 1 unit
Speed, service: 15.1kt
Registry: Panama
Classification: ABS/CR
Completion: May 19, 2017

CHEMROAD SAKURA

Builder: Shin Kurushima Dockyard Co., Ltd.
Hull No.: S-5915
Ship type: Chemical tanker
L (o.a.) x B x D x d: 172m x 27.4m x 16.3m x 11.57m
DWT/GT: 35,688t/21,254
Main engine: 6UEC50LSH-Eco-C2 diesel x 1 unit
Speed, service: 15.00kt
Registry: Panama
Classification: NK
Completion: April 27, 2017