SEA-Japan

No. 420 Aug - Sept. 2023

Kawasaki delivers LPG-powered LPG/NH_3 carrier, AXIS RIVER

Kawasaki Heavy Industries, Ltd. delivered the AXIS RIVER (HN: 1756), an 86,700m^3 liquefied petroleum gas (LPG) and ammonia (NH_3) carrier powered by LPG, on June 30, 2023.

The AXIS RIVER is the first of Kawasaki's newest-design 86,700m^3 capacity, LPG-fueled LPG/NH_3 carrier, with increased cargo capacity compared to the previous 84,000m^3 LPG carrier as well as ammonia loading capability. Kawasaki has completed eight LPG-powered vessels to date, and the AXIS RIVER is its 71st LPG carrier in total.

This latest LPG/NH_3 carrier is capable of simultaneous transportation of LPG, which is already widely used as a low carbon-emission energy source, and ammonia, which is expected to be utilized as a new fuel in low and zero carbon-emission societies. Furthermore, this vessel is designed to increase cargo tank capacity, while maintaining its principal dimensions like length (o.a.) and beam similar to conventional- type vessels so that the carrier can be berthed at major LPG terminals around the world.

In consideration of the strengthening of environmental regulations around the world and action plans for the Sustainable Development Goals (SDGs), Kawasaki will continue to develop and provide customers with environmental- friendly ship technologies with a focus on LPG carriers and LPG/NH_3 carriers powered by LPG, as well as other types of merchant vessels compliant with the latest environmental regulations, including liquefied hydrogen carriers, which is expected to be widely used as a next-generation energy source. In this way, Kawasaki will contribute toward the realization of low and zero carbon-emission societies.

Features

1) This carrier is equipped with the Kawasaki-MAN B&W 6G60ME-C10.5-LGIP, a Kawasaki-made, electronically controlled, LPG-injection marine diesel engine (ME-LGIP engine). Utilizing LPG as fuel can significantly reduce sulfur oxide (SO_x) and CO_2 emissions in exhaust gases compared with ships running on conventional marine fuel oil, enabling compliance with SO_x emission standards and EEDI phase 3 regulations.

2) The propulsion system is compliant with nitrogen oxide (NO_x) Tier III requirements and utilizes EGR and SCR equipment. Consequently, the vessel can travel in NO_x emission control areas (ECAs) even when operating on conventional low-sulfur fuel.

3) Fuel consumption is reduced through the inclusion of the Kawasaki RBS-F (Rudder Bulb System with Fins), the Kawasaki SDS-F (Semi-Duct System with contra Fins), and energy-saving fins around the propeller.

4) The concept design for a system that utilizes ammonia as fuel on this vessel has been approved by Nippon Kaiji Kyokai (ClassNK). Therefore, the ship design specifications can be modified to enable the use of ammonia as fuel in the future.

Principal particulars

L (o.a.) x B (mld.) x D (mld.) x d (mld.):	229.90m x 37.20m x 21.90m x 11.60m
DWT/GT:	56,503t/49,542
Cargo tank capacity:	86,919m^3
Main engine:	Kawasaki-MAN B&W 6G60ME-C10.5-LGIP diesel x 1 unit
Speed:	Approx. 17.0kt
Complement:	35
Classification:	ClassNK
Registry:	Panama
Delivery:	June 30, 2023

For further information please contact: Website: http://www.jsea.or.jp

JSEA

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

Hakodate completes Handy-size bulk carrier, BUNUN UNICORN

The Hakodate Dock Co., Ltd. (Hakodate) delivered the 40,000DWT type log/bulk carrier, BUNUN UNICORN, built at its Hakodate Shipyard on June 8, 2023. The vessel is one of a series of HIGH BULK 40E jointly developed with Namura Shipbuilding Co., Ltd.

This design adopts all advantages of the previous generation of the HIGH BULK 34E series, with the concept of more competitiveness in maximizing the volume of cargo capacity for grains, coals, steels, logs, etc. and more eco-friendly operation by reducing fuel consumption with optimized hull form and energy-saving devices.

Various measures for energy and fuel saving efficiency are incorporated in addition to the hull form such as the newly developed vertical shaped bow and three energy saving devices, the Namura flow Control Fin (NCF), the Rudder Fin (R-Fin), and the additional fins behind NCF attached to the stern, which improve propulsion performance and fuel saving efficiency. Therefore, this vessel has achieved EEDI (Energy Efficiency Design Index) Phase 3.

Semi-box shaped cargo holds with larger cargo hatch covers are adopted for serviceable and safer operations in cargo handling work. Double hull construction is adopted for security against unexpected occurrences such as collision damage and cargo leakage. Four deck cranes on the upper deck in the centre line and the collapsible-type stanchion on the upper deck are equipped for loading logs.

Principal particulars

L (o.a.) x B (mld.) x D (mld.) x d (mld.): 182.94m x 31.60m x 14.80m x 10.37m

DWT/GT:	40,045t/24,472
Complement:	24
Classification:	ClassNK
Registry:	Panama

35,500GT-class domestic Ropax ferry SUNFLOWER KURENAI

The SUNFLOWER KURENAI is Japan's first LNG-fueled ferry designed and built at Mitsubishi Shipbuilding Co., Ltd. and was delivered to the owner Mitsui O.S.K. Lines, Ltd. and the operator Ferry Sunflower Co., Ltd. on December 16, 2022 to service a domestic ferry route beginning January 13, 2023, between Osaka (Osaka) and Beppu (Oita) as a replacement for the ferry SUNFLOWER IVORY.

The environmental performance and seaworthiness of the vessel are enhanced by various efficiency propulsive devices and equipment. The latest high-performance dual-fuel engines can run on both liquefied natural gas (LNG) and A-type heavy oil. The use of LNG fuel is expected to achieve a 20% reduction in CO_2 emissions and close to zero emissions of sulfur oxides (SO_x).

The newly designed high performance hull form reduces the hull resistance, and the proximity twin-screw system incorporates shaft brackets to improve the propulsion efficiency and reduce the hull resistance. The shaft generators/motors controlled by thyristors are driven by both the main engines and electric diesel generators, to supply electric power for the ship's hotel services and propulsive power assist.

Expansive public areas include enlarged bathing facilities, a more spacious restaurant, and an atrium extending through three stories. Some cabins and public spaces are equipped with various barrier-free facilities for the handicapped so that every passenger can enjoy their onboard trip.

Principal particulars

L (o.a.) x L (b.p.) x B (mld.) x D (mld., Deck 6) x d (mld.): abt.199.9m x 187.00m x 28.00m x 20.90m x 6.80m

GT:	(Japanese) 17,114
	(International) 35,471
DWT:	6,918t
Speed, service:	22.5kt
Cargo loading capacity	
13m Trucks:	137 units
Cars:	100 units
Passengers:	716 persons
Crews:	43 persons

Main engine:Wartsila 16V31DF (MR 8,800kW x 750min^{-1}) x 2 units

Main propellers (CPP):	2 units
Special Equipment	
Bow thrusters:	2 units
Stern thrusters:	2 units
Elevators:	2 units
Fuel gas supply system (inc. LNG tank):	1 unit
Shaft generators:	2 units
Classification:	Japanese Government
Registry:	Japan (Osaka)

Ship of the Year Award 2022

Winner is the SHOFU MARU built by Oshima Shipbuilding Co.

The Japan Society of Naval Architects and Ocean Engineers (JASNAOE) selected the SHOFU MARU which uses wind power directly for propulsion for the Ship of the Year Award 2022 from the eight candidate ships this year, the 33rd year of this annual event. The Ship of the Year award is given to innovative ships built in the past year based on technical, artistic, and social considerations. The candidate announcement meeting and the selection meeting for the Ship of the Year Award 2022 were held on May 11. The winners of individual sectors were the SUN FLOWER KURENAI (Large passenger ship sector), the NOGAMI (Small cargo ship sector), the KAIJIN MARU (Fishing ship/research ship sector), the KIN-EI MARU No. 58 (Work vessel/special service ship sector), and an unmanned undersea vessel (UUV) designed for long-term operations (Marine structures/marine service equipment).

The prize award ceremony, a joint event organized by the JASNAOE, the Japan Institute of Marine Engineering (JIME), and the Japan Institute of Navigation (JIN), the three academic societies in the maritime science sector, took place at the Kaiun Club on July 14.

Winner of The Ship Of The Year Award 2022

SHOFU MARU

The SHOFU MARU is equipped with a hard sail incorporating rotating, extending, and reefing functions at the bow. This device provides propulsion efficiency directly from wind forces, resulting in considerable reduction of GHG emissions. Appropriate operation of the hard sail ensures good visibility from the bridge in a port or congested waterway. The hard sail can be positioned to not interfere with cargo-handling equipment. Therefore, equivalent safety in operation is obtained as a conventional ship without a sail. Moreover, incidental equipment for sailing operations has been developed and tested at sea, which includes a controlling unit to maintain the sail under optimal conditions and a Weather Routing System to indicate the best navigation route.

Ship name:	SHOFU MARU
Ship type:	100,000 DWT class bulk carrier
Ship owner:	Mitsui O.S.K. Lines, Ltd.
Engineering companies	Oshima Shipbuilding Co., Ltd. Mitsui O.S.K. Lines, Ltd.
Shipbuilder:	Oshima Shipbuilding Co., Ltd.
Completion:	October 7, 2022
Lpp x B x D - d:	231.00m x 43.00m x 20.05m - 12.83m
Gross tonnage:	58,209
Speed, service:	approx. 14.30kt
Main engine:	MES MAN 6S60ME-C10.5-EGRBP diesel x 1 unit
Cargo:	Coal (approx. 90,000t)

Characteristic structure & outfitting:

One set of hard sail equipment, the so-called "WIND CHALLENGER" that is extended and reefed automati cally.

Winners of individual sectors

SUN FLOWER KURENAI (Large passenger ship sector)

NOGAMI (Small cargo ship sector)

KAIJIN MARU (Fishing ship / research ship sector)

→

KIN-EI MARU No. 58 (Work vessel / special service ship sector)

←

Long-term operation type UUV (Marine structures / marine service equipment)

Shin Kurushima Sanoyas completes KAMSARMAX bulker, NORA SCHULTE

Shin Kurushima Sanoyas Shipbuilding Co., Ltd. delivered the KAMSARMAX bulk carrier, NORA SCHULTE (HN: 1390), at its Mizushima Shipyard on June 9, 2023.

This is the 14th vessel of a series of the Sanoyas newly developed 82,000DWT-type KAMSARMAX bulk carriers. The vessel not only adheres to latest rules such as CSR, NO_x Tier III and SO_x emission regulations, but also has maximized deadweight with shallower draft compared to builder's previous design. The vessel also achieves more than 30% reduction of CO_2 emissions (Phase 3 basis) of IMO's EEDI (Energy Efficiency Design Index: grams CO_2 per ton nautical mile) regulation in advance that shall apply to ships whose building contract is placed on or after 2025.

For improvement of propulsion efficiency, the vessel is equipped with a low-speed & long-stroke electronically controlled main engine combined with a high-efficiency propeller and rudder appendages. Furthermore, patented energy saving devices such as Sanoyas developed "STF" (Sanoyas-Tandem-Fin), ACE DUCT (Sanoyas Advanced flow Controlling and Energy saving DUCT) and advanced rudder bulb/fin construction are applied. These energy saving devices together with design improvement contribute towards over 8% reduction of energy consumption over previous design, satisfying EEDI Phase 3 compliance. The vessel incorporates various eco-friendly features such as main engine with SCR system for reduced NO_x emissions under Tier III mode towards air pollution prevention whilst steaming in NECA (NO_x Emission Control Area). IMO/USCG approved Ballast Water Treatment System, Grey Water Holding Tanks and independent holding tanks for rainwater on the upper deck are also incorporated.

Furthermore, for improvement of the vessel's maintenance, access trunks are arranged to make it possible to gain access from upper deck

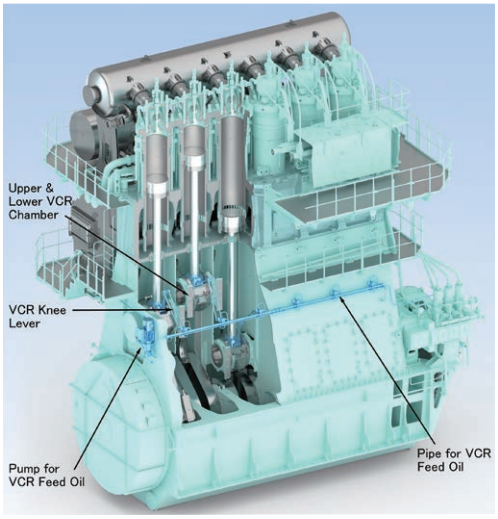
to double bottom even in laden condition. Accommodation compliance with the latest IMO noise reduction regulation contributes towards improving comfortable working and living environment for the crew onboard.

Principal particulars

Hull No.:	1390
L (o.a.) x B (mld.) x D (mld.) x d (ext.):	229.00m x 32.24m x 20.15m x 14.594m
DWT/GT:	81,957t/43,442
Cargo hold capacity: (grain)	97,034m^3
Speed, service:	Approx. 14.1kt (at C.S.O. with 15% sea margin)
Complement:	25
Classification:	ClassNK
Delivery:	June 9, 2023

World's first VCR system of Mitsui E&S DU debuts for marine engines

Mitsui E&S DU Co., Ltd., one of the group companies of MITSUI E&S Co., Ltd., has received the world's first order for two variable compression ratio systems (VCR system). These VCR systems will be built in dual-fuel main engines, model 6X62DF-2.1, which will be installed on two LNG-fueled large coal carriers. These carriers will be built by Oshima Shipbuilding Co., Ltd. to the order of Nippon Yusen Kabushiki Kaisha (NYK Line) and enter the service in 2025.



The VCR system can decrease fuel cost by 3% in gas-fuel mode and 6% in diesel-fuel mode by controlling compression ratio at the optimum according to engine output and property of fuel LNG. The reduction will depend on engine operation conditions due to ship's navigation loads but will greatly contribute to reducing fuel costs and CO_2 emissions. Moreover, the VCR system will be important for adopting new-type fuels or new technologies to achieve the goal of decarbonization, or for improving performances of existing ships.

Variable compression is effective to increase engine performance, but the complicated structure of the engine has restricted technological development of such system with various difficulties. Mitsui E&S DU has achieved commercialization of this VCR system in collaboration with Winterthur Gas & Diesel Ltd., Switzerland.

Mitsui E&S DU has been manufacturing large low-speed marine diesel engines since 1948 as Harima Shipbuilding Co., the forerunner of Mitsui E&S DU. Based on the accumulated technological experiences through building large marine engines, the company has been continuing technological development of the VCR system by applying advanced technologies related to hydraulic pressure, sealing, lubrication, structural strength, and control systems, which have been accumulated in various industries. Constituents of the system have been repeatedly tested as well, allowing the commercialization of the present system.

Mitsui E&S DU will contribute to realizing decarbonized society in collaboration with Winterthur by meeting the needs of users.

New JSEA President appointed

New President Miyanaga

The 126th Annual General Meeting of the Japan Ship Exporters' Association (JSEA) in Tokyo selected 28 directors and 2 auditors on May 24, 2023. The subsequent 650th Directors' Meeting selected Mr. Shunichi Miyanaga, Chairman of the board, Mitsubishi Heavy Industries, Ltd. as the new JSEA President. Mr. Miyanaga's tenure will last the usual two years. Mr. Miyanaga completed a two-year as Chairman of the Shipbuilders' Association of Japan (SAJ) on June 17, 2023, having held the position since 2021. The same meeting appointed four Executive Vice Presidents of the JSEA: Mr Yukito Higaki, President, Imabari Shipbuilding Co., Ltd. (reappointment); Mr. Yoshinobu Nakamura, Senior Corporate Adviser, Sumitomo Heavy Industries, Ltd. (reappointment); Mr. Takao Kusaka, Executive Officer, Sumitomo Corporation (reappointment); and Mr. Tatsuhiko Niitaka, Executive Officer, Sojitz Corporation (new appointment). Standing officers of JSEA include Mr. Satoshi Ito, Senior Managing Director (reappointment) and Mr. Shinzo Tsuruoka, Managing Director, concurrently Secretary General (new appointment).

New SAJ Chairman appointed

New Chairman Kanehana

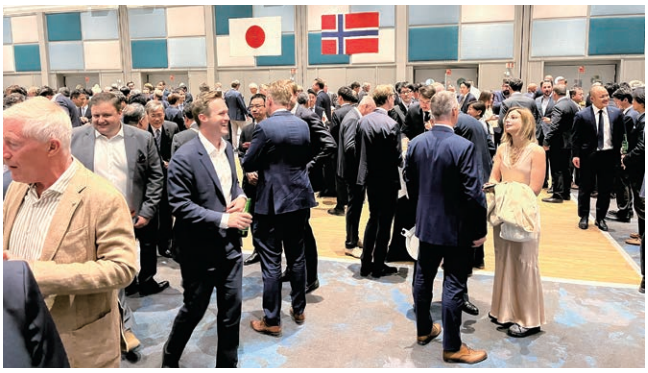
The 87th annual general meeting of the Shipbuilders' Association of Japan (SAJ) took place on June 16 and elected 19 new directors. Subsequently, the 689th board of directors' meeting was held, and Mr. Yoshinori Kanehana was appointed as the 39th Chairman of SAJ. Mr. Kanehana is oncurrently Chairman of the Board of Kawasaki Heavy Industries, Ltd.

NOR-SHIPPING 2023 opened successfully at NOVA Spektrum

The Japan Ship Exporters' Association (JSEA) participated in the 29th International Shipping Exhibition and Conference, NOR-SHIPPING 2023. The exhibition was successfully held with the sponsorship of NOVA Spectrum at Nova Spectrum (Former name: Lillestrom Exhibition Centre), Oslo in Norway during 4 days from Tuesday June 6 through Friday June 10. JSEA participated in the exhibition with the cooperation of the Shipbuilders' Association of Japan and support from The Nippon Foundation. According to its organizer, 892 exhibitors from 42 countries were present at NOR-SHIPPING 2023, which also attracted 30,010 visitors. For this exhibition, the JSEA provided the national exhibition stand in cooperation with the Nippon Kaiji Kyokai (ClassNK) and the Japan Ship Machinery and Equipment Association (JSMEA).

Seminar

On Tuesday June 7, from 13:30, JSEA held a seminar entitled JAPAN SEMINAR - Challenges by Japan for Norwegian shipowners and related parties in the Meeting Room Oslo 1 & 2 Thon Hotel Arena. The seminar continued with major discussions about the measures required for advanced technological demands. Presenters included three companies exhibiting from JSEA, Nihon Shipyard Co., Ltd., Kawasaki Heavy Industries, Ltd., and Mitsubishi Shipbuilding Co., Ltd., and from JSMEA, Tokyo Keiki Inc., Daihatsu Diesel Mfg. Co., Ltd. and HyEng Corporation, as well as ClassNK. Live streaming of the seminar was also provided through YouTube via the JSEA Digital Platform.



Party at the Radisson Blu Scandinavia Hotel

Party

A party jointly hosted by Mr. and Mrs. Kawamura, Japanese Ambassador to Norway, and Mr. Miyanaga, JSEA president, was held in the evening of June 7. This event was attended by 516 people including major shipowners and ship brokers in Norway and other Western countries, the financial community, the press, the Norwegian government, and foreign embassies in Norway. Ambassador Kawamura delivered a welcome speech.

ONE INFINITY

Builder: Imabari Shipbuilding Co., Ltd.
Ship type: 24,000TEU-type container carrier
L (o.a.) x B x D: 399.95m x 61.40m x 33.20m
Main engine: 9G95ME-C10.6 diesel x 1 unit
Classification: DNV
Completion: July 12, 2023

WAN HAI 363

Owner: Wan Hai Lines (Singapore) Pte. Ltd.
Builder: Japan Marine United Corporation
Hull No.: 5503
Ship type: 3,013TEU container ship
L (o.a.) x B x D x d: 203.5m x 34.8m x 16.60m x 11.5m
DWT/GT: 36,776t/30,776
Main engine: MAN B&W 7S70ME-C10.5-HPSCR diesel x 1 unit
Speed, service: 21.5kt
Complement: 25
Classification: ABS/CR
Registry: Singapore
Completion: May 30, 2023

FEDERAL PRIDE

Owner: Ambitious Line, S.A.
Builder: Oshima Shipbuilding Co., Ltd.
Hull No.: 11018
Ship type: Bulk carrier
L (o.a.) x B x D x d(ext.): 182.998m x 32.26m x 15.00m x 10.542m
DWT/GT: 42,686t/25,863
Main engine: Mitsui-MAN B&W 5S50ME-C9.7-EGRBP diesel x 1 unit
Speed, service: 14.00kt
Classification: ClassNK
Registry: Panama
Completion: April 21, 2023

PENELOPE

Owner: Ikaria Shipowners S.A.
Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
Hull No.: 1412
Ship type: Crude oil carrier
L (b.p.) x B x D : 239.67m x 44.00m x 21.55m
DWT/GT: 114,760t/abt.60,000
Main engine: Mitsui-MAN 6G60ME diesel x 1 unit
Speed, service: 14.5kt
Classification: LR
Registry: Bahamas
Completion: May 10, 2023

PAVO BREEZE

Owner: Panamanian owner
Builder: Shin Kurushima Dockyard
Hull No.: S-6168
Ship type: Bulk carrier
L (b.p.) x B x D: 196.5m x 32.26m x 19.4m
DWT/GT: 64,263t/36,760
Main engine: Mitsui-MAN B&W 6S50ME-C9.6-EGRBP diesel x 1 unit
Speed, service: 14.0kt
Classification: NK
Registry: Panama
Completion: May 19, 2023

Information from JSEA

Our news letter, SEA-Japan, is now available as e-mail. If anyone wishes to receive the digital edition (pdf format), please contact

sea-japan@jsea.or.jp

with the following information of yourself for identification:

1. Full name;
2. Company name/occupation, or freelance/others;
3. Your company address, or your country; and
4. E-mail address

You can also find back issues of SEA-Japan at our website:
https://jsea.or.jp