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NAMURA completes Newcastlemax type bulk carrier, CSK ZEPHYR

Namura Shipbuilding Co., Ltd. delivered the CSK ZEPHYR, a 207,805DWT bulk carrier, to Gulf Bulk Carriers Pte. Ltd. at its Imari Shipyard & Works on November 22, 2018. The vessel is the first of the newly developed 208,000DWT type bulk carrier with various features.

The principal dimensions of the vessel have been optimized to satisfy the restrictions of the Port of Newcastle in Australia. Further improvement of propulsion performance and fuel oil saving were achieved with adoption of energy saving devices, wind forces reduction type superstructure, electronically controlled main engine, and the latest model of high effiiciency propeller.

For environmental protection, the vessel is equipped with a main engine and generator engines compliant with the Annex VI of MARPOL 73/78 regulations to reduce NO_x emissions (NO_x Tier II), the arrangement of fuel oil tanks is designed for usage of low sulfur fuel oil, and an air seal type stern tube sealing device is adopted to reduce the risk of oil leakage.

The centralized fresh water cooling system adopted for the machinery space equipment, such as main engine, generator engines, etc., contributes to easy maintenance. The ballast water treatment system to control the quality of ballast water is equipped for protection of the marine environment to comply with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMS). The vessel has several storage tanks for appropriate management of discharge overboard of living drainage, sewage, rain water and water used for cleaning cargo holds, and to satisfy the port regulations for such discharges.

Principal Particulars

L (o.a.) x L (b.p.) x B (mld) x D (mld) x d (mld):	299.95m x 295.70m x 50.00m x 25.00m x 18.30m
DWT/GT:	207,805t/108,362
Main engine:	MAN B&W 6G70ME-C9.5 diesel x 1 unit
MCO:	15,770kW x 75.0min^{-1}
Speed, service:	14.0kt
Complement:	28
Classification:	ABS
Registry:	Singapore
Completion:	November 22, 2018

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JMU completes Suezmax tanker, FOLEGANDROS

Japan Marine United Corporation (JMU) delivered the Suezmax tanker FOLEGANDROS to OMEGA FOUR MARINE CORP. of OKEANIS ECO TANKERS at the Tsu Shipyard on September 19, 2018. This is the second vessel of the newly developed Suezmax tanker type undertaken after integration of two companies, Universal Shipbuilding and IHIMU. Principal particulars have been optimized to meet the market requirements, while satisfying the restrictions of main ports worldwide.

Various latest technologies developed through combined experience in building tankers have been incorporated. Excellent hull performance was achieved by using various and comprehensive technologies, including the advanced lower resistance hull form and optimized Super Stream Duct®, Surf-Bulb® and ALV-Fin® energy saving devices. The unique bow shape, called the Ax-Bow®, gives better performance in waves, and the superstructure is designed for lower wind resistance.

The Energy Effiiciency Design Index (EEDI) phase 2, which is required for vessel contracted for construction on or after 2020, is achieved. The fuel oil consumption was further improved by an electronically controlled marine diesel engine, which complies with MARPOL NO_x regulation Tier II, and a high effiiciency 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 further 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: 274.30m x 48.00m x 23.15m
DWT/GT: 159,221t/82,648
Main engine: MAN-B&W 7S65ME-C8.5 diesel x 1 unit
Speed, service: 14.65kt
Complement: 28
Classification: ABS
Delivery: September 19, 2018

Kawasaki delivers 82,200m³ LPG carrier, GENESIS RIVER

Kawasaki Heavy Industries, Ltd. delivered the GENESIS RIVER (HN: 1736), a 82,200m³ capacity liquefied petroleum gas (LPG) carrier, for Kawasaki Kisen Kaisha, Ltd. ("K" Line) on November 20, 2018. This is the 56th LPG carrier of all types and the 7th LPG carrier of the same type built by the company.

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

Four independent cargo tanks are installed in the cargo holds for carrying LPG. The tanks are designed to provide optimal thermal insulation and absorb low-temperature contraction. Special cryogenic steel is used for the cargo tanks to contain LPG at minus 46°C. The tanks are isolated from latent heat with thermal insulation of urethane foam.

The main engine is an energy-effiicient, 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.

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

Owner:Kawasaki Kisen Kaisha, Ltd.
Builder:Kawasaki Heavy industries, Ltd.
Hull No.: 1736
Ship type: LPG carrier
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: 54,149t/46,794
Cargo tank capacity: 82,418m³
Main engine: Kawasaki-MAN B&W 7S60ME-C8.2 diesel x 1 unit
Complement: 35
Registry: Panama
Classification: ABS
Delivery: November 20, 2018

MHIMSB completes new generation MOSS type LNG carrier, LNG JUNO

Mitsubishi Shipbuilding Co., Ltd. (MHIMSB), a group company of Mitsubishi Heavy Industries, Ltd. (MHI) completed construction of the LNG JUNO (HN:2323), a new generation MOSS type LNGC "SAYARINGO STaGE" and delivered the vessel to MOG-X LNG SHIPHOLDING S.A. on November 30, 2018. MHIMSB will continue to deliver solutions for stable energy supplies and environmental benefits by constructing high quality and environmental-friendly LNG carriers with advanced technology.

The "SAYARINGO STaGE" type is the successor to the "SAYAENDO" (podded peas) type, which was highly acclaimed for its improved highly reliable Moss-type tanks. The apple-shaped (ringo) tanks in the "SAYARINGO STaGE" has enabled an increase in LNG carrying capacity without changing the ship's beam, and its propulsion system has significantly boosted fuel effiiciency compared to the "SAYAENDO."

"STaGE," an acronym derived from "Steam Turbine and Gas Engines", is a hybrid propulsion system combining a steam turbine and engines that can be fired by gas utilizing the engine's waste heat in the steam tur-bine, and this results in plant effiiciency, enabling high-effiiciency navigation throughout a full range of speeds.

The continuous tank cover, developed by MHI Group with technical support from Aker Arctic Technology Inc. of Finland, enables a lighter vessel while fully retaining overall structural strength. It also reduces wind resistance during navigation.

The ship has adopted the world's first technologies of extension of allowable range of cargo tank pressure up to 100kPaG with dual pilot safety valves with multiple pressure settings, and relaxation of the equator ring temperature to ready for loading. Extension of the allowable range of cargo tank pressure enables intentional pressure accumulation in cargo tanks during the ballast voyage and will contribute to minimizing wasteful gas losses during low load or drifting operations, such as passage through the Panama Canal. Relaxation of the equator ring temperature achieves smaller heel LNG amount and shorter tank cooling time to ready for loading.

Principal particulars

Owner: MOG-X LNG Shipholding S.A.
Builder: Mitsubishi Shipbuilding Co., Ltd.
Hull No.: 2323
Ship Type: LNG carrier
L (o.a.) x L (b.p.) x B x D x d: 297.5m x 293m x 48.94m x 27.0m x 11.5m (designed)
Gross tonnage: 149,367
Cargo tank capacity: 180,517m^3
Main engines:
1)Mitsubishi, MR21-II, Marine Steam Turbine with Reduction Gear x 1 set
Output: 12,450kW x 61.0rpm
2)GE, N3 HXC 1000 J8, Electric Propulsion Motor with a Reduction Gear x 1 set
Output: 12,450kW x 61.0rpm
Speed, service: 19.5kt
Classification: ABS
Completion: November 30, 2018

Kanda completes 7,200DWT cement carrier, SEFURIZAN MARU

Kanda Shipbuilding Co., Ltd. completed construction of the SEFURIZAN MARU, a 7,200DWT cement carrier at the Kawajiri Works for Tsurumaru Shipping Co., Ltd. on October 15, 2018. The carrier is now engaged in the cement coasting trade.

This carrier with six cargo holds has been designed with the double side-hull structure to prevent serious damage in an accident. The TCC area is partitioned with a square-shape butterfly valve to maintain watertightness, and damage stability is secured by compartmenting each cargo hold.

The carrier has been designed to comply in advance with the regulations based on the IMO Code on Noise. Accommodation has been arranged by referring to noise values measured on a reference ship, and sound insulation has been applied to the required structural areas to achieve required noise levels. The noise level has greatly been reduced compared with the predecessor. This improvement contributes to providing the crew with comfortable living environment.

The new cement carrier has employed various energy-saving devices to gain superior propulsion effiiciency and fuel-saving performance.

Principal particulars

Owner:Tsurumaru Shipping Co., Ltd.
Builder:Kanda Shipbuilding Co., Ltd.
Hull No.: 578
Ship type: Cement carrier
L (o.a.) x B x D x d: 113.03m x 18.60m x 9.70m x 6.95m
DWT/GT: 7,296t/5,430
Main engine:AKASAKA A45S diesel x 1 unit
Speed, service: 13.7kt
Classification: ClassNK
Completion: October 15, 2018

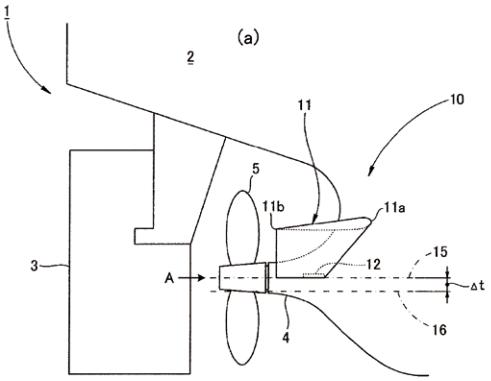
Sanoyas develops new energy saving device, ACE DUCT

Sanoyas Shipbuilding Corporation has developed the ACE DUCT for ships. This device is an Advanced flow Controlling and Energy saving DUCT, and the name indicates its ace standing among energy saving devices.

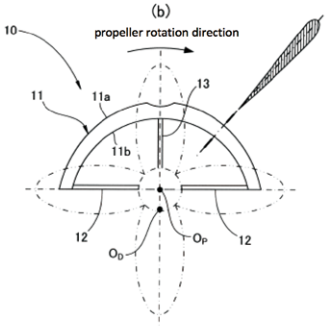
The ACE DUCT is an energy saving device installed before the propeller, consisting of three elements, the semicircular duct, horizontal struts, and vertical strut.

The semicircular duct is an airfoil to assist in water-flow distribution in the turbulent flow field around the propeller and to increase the thrust force of the ship. Effective flow distribution can be obtained by adjusting the installation angle of the duct to the ship level. Moreover, the ACE DUCT can reduce cavitation risk by installation at a relatively low position and optimizing the shape of the horizontal struts.

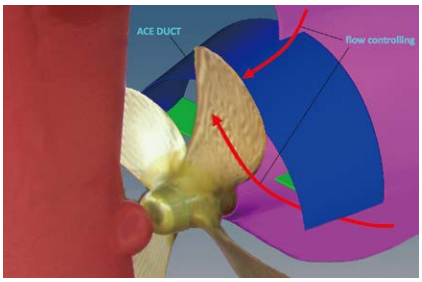
Sanoyas has optimized the shape of the ACE DUCT using computational fluid dynamics (CFD) simulations. The CFD study showed that the horizontal struts obstructed the water flow from the ship bottom around the propeller. Therefore, the shape of the horizontal struts is a significant factor to achieve superior propulsion effiiciency.



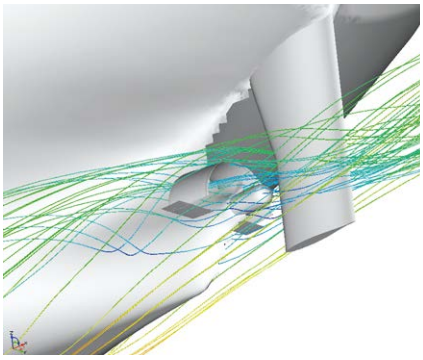
Side view



Cross-sectional view



Flow control image



CFD simulation image

Sanoyas has conducted model tests on the ACE DUCT which indicated that the energy saving effect achieves an about 8% decrease in fuel consumption when combined with other energysaving devices such as the Sanoyas Tandem Fin (STF). Sanoyas will continue efforts to supply the shipbuilding market worldwide with eco-friendly and fuel-effiicient ships.

Shin Kurushima completes chemical tanker, HAKONE GALAXY

Shin Kurushima Dockyard Co., Ltd. completed construction of the HAKONE GALAXY, a 26,196DWT chemical tanker for MOL Chemical Tankers Pte. Ltd. of Singapore on September 13, 2018.

The vessel was built for ocean transport of chemicals included in the IMO type II and III and oil products categories. A total of 23 cargo tanks are provided for transport of various types of cargo chemicals and constructed using SUS316LN stainless steel and SUS316LN clad steel to ensure cargo quality.

All cargo tanks including the slop tanks employ the double-hull structure and have adequate strength to permit full load with a density of 1.30t/m^3. Structures protruding into the tanks have been minimized using the on-deck girder system for the upper deck and vertical corrugated type bulkheads.

All cargo tanks are equipped with one submerged cargo pump driven by a hydraulic motor. The cargo pumps are remotely controlled from the cargo control room. A 10t-capacity deck crane, which is operated hydraulically, is installed at the midship section for effiicient cargo-hose handling.

Principal particulars

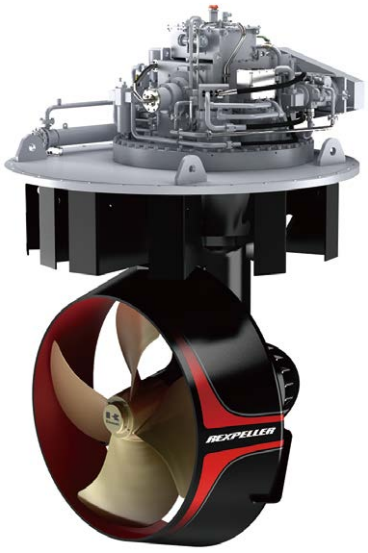
Owner:MOL Chemical Tankers Pte. Ltd.
Builder: Shin Kurushima Dockyard Co., Ltd.

Hull No.:	S-5972
Ship type:	Chemical tanker
L (o.a.) x B x D:	151.5m x 27.1m x 14.2m
DWT/GT:	26,196t/16,589
Main engine:	B&W 6S46ME-B8.5 diesel x 1 unit
Speed, service:	14.95kt
Registry:	Singapore
Classification:	ClassNK
Completion:	September 13, 2018

Kawasaki Rexpeller production reaches 1,000 units

Kawasaki Heavy Industries, Ltd. has recently completed the 1,000th Rexpeller® for use in marine vessel-propulsion since the start of productionin 1983. The Rexpeller is a fully azimuth-steerable thruster that functionsas both propulsion and steering unit.

The Rexpeller azimuth thruster demonstrates superior ship maneuverability and has been used for tugboats, supply boats, drilling ships, specific work-vessels, self-elevating platforms, and others. Kawasaki has already developed three main series for specific applications to satisfy the requirements of the industry, which includes the standard series with 11 types covering output of 410 to 4,500kW, the underwater mounting series with four types (3,800 to 6,500kW), and the retractable series with five types (590 to 3,000kW).



E type Rexpeller

Kawasaki built a new production facility for the exclusive manufacture of the Rexpeller in 2013, and added a new standard model, KST-E (E series), to its lineup with the first order for the newly developed E-series Rexpeller from China Communications Import & Export Corporation (CIESCO) for delivery to Tianjin Lingang Tug Co., Ltd. on February 13, 2018. Four 1,471kW-type E series have now been installed on the Chinese tugboats. The E series has further increased propulsion performance that contributes to energy saving, easy inboard maintenance, and environment-conscious performance.

Rexpeller outline

The Kawasaki Rexpeller consists of various types and features designed for specific purposes. The input power range can meet virtually any vessel specifications up to 6,500kW.

Installation and maintenance of the Rexpeller can easily be achieved because of the compact design using the built-in clutch and hydraulic components. Adoption of the skewed propeller and optimized design stiffness for the driving unit have minimized vibration and noise.

Optimization of component design was based on the finite element method (FEM) to cope with the latest requirements of lightweight and robust azimuth thrusters. Propellers are available as the controllable pitch propeller (CPP) or fixed pitch propeller (FPP), which can be installed with either L or Z drive configuration.

Ceremony for 1,000th Rexpeller production

Underwater mounting type

Retractable type

The operation control unit can integrate with navigational devices and positioning systems to enable autopilot and dynamic positioning, so easy operation and highly accurate control are possible. The control unit can be coupled to protective devices such as automatic load control (ALC) and overload protection (OLP) systems (for CPP).

The shockless hydraulic clutch is operated by automatically controlling the hydraulic oil flow rate and reduces the shock of on/off-type clutch engagement. The slipping clutch is available optionally, which allows for more fine control of vessel operation.

ONE COLUMBA

Owner: Hanna Ship Holding S.A.
Builder: Japan Marine United Corporation
Hull No.: 5122
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/145,647
Main engine: WinGD W9X82 x 1 unit
Speed: 22.5kt
Complement: 30
Classification: ClassNK
Completion: November 16, 2018

LOWLANDS HORIZON

Owner: CLdN Cobelfret Pte. Ltd.
Builder: Oshima Shipbuilding Co., Ltd.
Hull No.: 10884
Ship type: Bulk carrier
L (o.a.) x B x D x d (ext.): 234.98m x 38.00m x 19.50m x 14.240m
DWT/GT: 93,478t/49,565
Main engine: Kawasaki-MAN B&W 6S60ME-C8.5 diesel x 1 unit
Speed, service: 14.30kt
Registry: Singapore
Classification: DNV GL
Completion: September 26, 2018

ST.NIKOLAI

Owner: Shenlong Maritime Pte. Ltd.
Builder: Onomichi Dockyard Co., Ltd.
Hull No.: 747
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: 50,129t/29,513
Main engine: Mitsubishi 6UEC50LSH-Eco-C2 diesel x 1 unit
Speed, service: 15.4kt
Registry: Singapore
Classification: ClassNK
Completion: Octobrt 18, 2018

AUDACITY

Owner: Audacity Marine Inc.
Builder: Tsuneishi Shipbuilding Co., Ltd.
Hull No.: 1572
Ship Type: Bulk carrier
L (o.a.) x B x D: 229.00m x 32.26m x 20.00m
Main Engine: MAN B&W 6S60ME-C8.2 diesel x 1 unit
Speed, service: 14.50kt
Registry: Liberia
Classification: LR
Completion: September 19, 2018

MINERVA ZENOBIA

Owner: Jiro Shipping, S.A.
Builder: Sasebo Heavy Industries Co., Ltd.
Hull No.: S845
Ship Type: Crude oil carrier
L (o.a.) x B x D x d (mld.): 249.97m x 42.00m x 21.20m x 14.80m
DWT/GT: 114,661t/63,485
Main engine: MAN B&W 6G60ME-C9.5 diesel x 1 unit
Speed, service: 15.0kt
Registry: Hellenic Republic
Classification: ABS
Completion: June 28, 2018

LANCING

Owner: North Sea Shuttle Company Limited
Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
Hull No.: 1394
Ship type: Tanker
L (p.p.) x B x D: 224.64m x 42.00m x 21.45m
DWT/GT: 106,200t/57,300
Main engine: Mitsui MAN B&W 6G60ME-C9.2 diesel x 1 unit
Speed, service: about 15.0kt
Classification: LR
Completion: November 2, 2018