



Mitsubishi completes 36,000GT class domestic Ropax ferry, SETTSU



The SETTSU is a ROPAX ferry designed and built at Mitsubishi Shipbuilding Co., Ltd. The ferry was delivered to the owner, Hankyu Ferry Co., Ltd. on February 27, 2020 and now services a domestic route in the Seto Inland Sea, between Shin-Moji (Fukuoka) and Kobe (Hyogo).

The vessel has extensive loading capacity on three truck decks and two passenger car decks. One of the passenger car decks is located on the accommodation deck level so that passengers, especially handicapped or older persons, can easily access the accommodation space. Some cabins and public spaces are equipped with barrier-free facilities for the handicapped.

Shaft generators/motors controlled by thyristors are driven by both main engines and electric diesel generators, to supply electric power for the hotel services and propulsive power assist. In addition to energy saving technologies, such as the high performance hull form and Mitsubishi Air Lubrication System (MALS), the vessel is equipped with a Hybrid SO_x scrubber system to satisfy the IMO SO_x emission regulations.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 195.00m x 179.60m 29.60m x 20.60m (Deck 5) x 6.95m

GT:	16,292 (Japanese) 36,206 (International)
DWT:	7,176t (at d=6.95m)
Cargo Loading Capacity	
8.5m long trucks:	277 units
Passenger cars:	188 units
Complement	
Passengers:	663 people
Crew members:	36 persons
Machinery	
Main engine: Wartsila 14V31 (MR 8,540kW x 750min ⁻¹) x 2 units	
Main propellers (CPP):	2 units
Speed, service:	23.5kt
Special Equipment	
Bow thruster:	2 units
Stern thruster:	2 units
Elevators:	2 units
MALS:	1 set
SO _x scrubber (Hybrid System):	2 sets
Classification:	Japanese Government
Registry:	Japan (Kobe)



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

Imabari and NS United Kaiun obtain AiP certificate for LNG-fueled ship

Imabari Shipbuilding Co., Ltd. and NS United Kaiun Kaisha, Ltd. (NS United Kaiun) have jointly obtained the AiP (Approval in Principle) certificate from Nippon Kaiji Kyokai (ClassNK) for LNG-fueled ships.

Global warming countermeasures have become international important issues. The IMO will further strengthen its EEDI (Energy Efficiency Design Index) regulations to Phase 3 from the current Phase 2 in 2025. Therefore, ships will have to reduce CO₂ emissions from the main engines by 30% in comparison with the reference values. To meet this requirement, shipbuilding and shipping industries have tried various countermeasures, particularly use of energy-saving units, or use of other fuels to achieve low CO₂ emission performance.

Imabari and NS United Kaiun will develop and design an LNG-fueled ship, targeting realistic countermeasures to lessen load on the environment. The joint efforts will cope with

the trend of the international regulations in considering the environment. ClassNK has examined the basic design of the LNG-fueled ship and accepted that the design fulfils the shipbuilding criteria to issue the AiP certificate.

Imabari and NS United Kaiun have jointly studied and scrutinized the requirements for optimal design of a LNG-fueled ship based on Imabari experiences in constructing dual fuel LNG carriers, and this new LNG-fueled ship design will be applied to a new 210,000-DWT type bulk carrier. This ship design will have two Type C LNG fuel tanks on the stern deck behind the bridge, which have advantages of cost competitiveness and easy installation. This al-

lows building the LNG-fueled ship without changing greatly the basic design of the conventional bulk carrier.

The main engine will use a low-pressure dual-fuel diesel engine. Boil-off gas (BOG) from the LNG fuel tanks can also be supplied to the engine to eliminate waste. This basic design can achieve CO₂ reduction by 30% in comparison with the reference values of EEDI Phase 3. The companies thus aim at reduction of environmental load and ship operational costs.



LNG-fueled Capesize bulk carrier (image)

JMU completes 311,000DWT crude oil tanker, ESTEEM EXPLORER

Japan Marine United Corporation (JMU) delivered the ESTEEM EXPLORER, a 311,000DWT crude oil tanker, to MK Centennial Maritime B.V. at its Ariake shipyard on January 21, 2020. This is the ninth vessel of the newly developed eco-type Maccamax VLCC series after integration of Universal Shipbuilding Corporation and IHI Marine United Inc.

Principal particulars have been optimized for transportation between Middle East and Japan, while satisfying restrictions of domestic ports. Various and latest technologies deve-

loped 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 efficiency 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 im-

proved by the application of new electronically controlled marine diesel engine, low friction paint and large diameter propeller. The vessel satisfies

the Energy Efficiency Design Index (EEDI), phase 2 which is required for the vessels contracted for construction on or after 2020.

The vessel is designed to ensure compliance with environmental rules and regulations by installing the Ballast Water Management System and furnishing the inventory list of hazardous materials. In addition, the vessel is equipped with a SO_x scrubber 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:	312,135t/160,649
Main engine:	MAN B&W 7G80ME-C9.5 diesel x 1 unit
Speed, service:	15.5kt
Complement:	30
Classification:	ABS



KHI delivers LPG carrier, PHOENIX GAIA, to Phoenix Tankers

Kawasaki Heavy Industries, Ltd. has delivered the PHOENIX GAIA (HN: 1742), an 82,200m³ capacity LPG carrier, to Phoenix Tankers Pte. Ltd. This is the 60th LPG carrier and the 11th 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 is an energy-efficient, electronically-controlled, ultra-long-stroke, two-stroke low-speed diesel engine. In addition, the Kawasaki rudder bulb system with fins (RBSF) 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 carry-

ing LPG. The tanks are designed to provide optimal thermal insulation and absorb low-temperature contraction. The cargo tanks are constructed with special cryogenic steel for loading LPG with a minimum temperature of -46°C. The tanks are wrapped in urethane foam for thermal insulation.

The vessel is designed to 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:	53,928t/47,231
Cargo hold capacity:	82,416m ³
Main engine:	Kawasaki-MAN B&W 7S60ME-C8.2 diesel engine x 1 unit
Complement:	29
Classification:	ClassNK
Registry:	Singapore
Delivery:	January 16, 2020

MHI-MME delivers MET turboschargers for world's largest dual fuel engines

Mitsubishi Heavy Industries Marine Machinery & Equipment Co., Ltd. (MHI-MME) has started delivery of MET Turbochargers for the world's largest two-stroke dual-fuel XDF engine, model 12X92DF, developed by Winterthur Gas & Diesel Ltd. (WinGD) of Switzerland and being built by CSSC-MES Diesel Co., Ltd. (CMD) of China.

These engines are scheduled to be mounted on nine 23,000TEU container vessels to be built at a shipyard of the China State Shipbuilding Corporation (CSSC) group. Many MET Turbochargers have already been

mounted on WinGD X-DF engines, and this major project further confirms the compatibility between MET Turbochargers and X-DF engines. A ceremony to unveil the first completed unit was held on December 2 at CMD, where the engine was built.

The combination of the MET Turbocharger with the 12X92DF engine achieves uniform lean combustion of gas-air mixtures in the engine. Simultaneous effective utilization of the exhaust gas enables both cleaner emissions and high efficiency, resulting in easy satisfaction of the strict International Maritime Organization (IMO)

nitrogen oxide (NO_x) and sulfur oxide (SO_x) emission regulations on specified ships, while also reducing carbon dioxide (CO₂) emissions with by changing the fuel from diesel to dual fuel. The combination of MET Turbochargers with X-DF engines will provide a powerful option for meeting stricter international rules from now on.

MHI-MME developed new models of small, lightweight and high-efficiency turbochargers in 2018, aiming to complete the first such turbocharger in 2020. The MET-MBII turbocharger series are available for installation on WinGD diesel engines as well as the former MET-MB series.



MES-S completes 35th neo60BC, FEDERAL OSAKA

Mitsui E&S Shipbuilding Co., Ltd. (MES-S) completed and delivered the 60,000DWT type bulk carrier, FEDERAL OSAKA (HN: 1963), at its Tamano Shipyard on April 7, 2020 to Caperose Navigation S.A., Republic of Panama.

The vessel is designed for loading various cargoes such as coal, ore, and grain, as well as lengthy/heavy cargoes such as steel pipes and hot coils. The design achieves over 60,000 deadweight tons with the Panamax beam and retains the neo56 compatibility for ports and trade routes.

The vessel has four cranes and five cargo holds and retains the superior usability of the Mitsui 56 series. The size of the hatch opening is the largest for this type of vessel in terms of both length and width.

The new form of the bow and stern can maintain good performance under

rough sea conditions as well as calm sea conditions and shows better maneuverability.

The main engine, a MITSUI-MAN B & W 6S50ME-B9.3 diesel engine, complies with the 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 Emission Control Areas (ECAs) with strengthened restrictions for SO_x. Compliance with the SOLAS Noise Code contributes to better crew working and living environments.



Principal particulars

L x B (mld.) x D (mld.):	199.99m x 32.25m x 18.50m
DWT/GT:	60,467t/34,582
Main Engine:	MITSUI-MAN B&W 6S50ME-B9.3 diesel x 1 unit
Speed, service:	about 14.5kt
Complement:	24
Classification:	NK
Registry:	Liberia
Delivery:	April 7, 2020

NAMURA completes Newcastlemax type bulk carrier, SANTA ISABEL

Namura Shipbuilding Co., Ltd. delivered the SANTA ISABEL, a 208,072 DWT bulk carrier, to Compania Flor de Vapores, S.A. (a Panamanian subsidiary of Mitsubishi Ore Transport Co., Ltd.) at its Imari Shipyard & Works on January 24, 2020. The vessel is the second of the newly developed 208,000DWT type bulk carrier with the following features.

The principal dimensions have been optimized based on the restrictions of the Port of Newcastle in Australia. Further improvement of propulsion performance and fuel saving were achieved with adoption of an energy saving device, wind force re-

duction type superstructure, an electronically controlled main engine, the latest model of high efficiency propeller, and low friction type anti-fouling paint.

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, a SO_x scrubber is installed for reducing SO_x emissions under the policy of IMO-The 2020 global sulphur cap, 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 contributes to

easy maintenance.

To improve the environment of the on-board living quarters, an elevator is installed for moving between the accommodation

quarters and engine room, and the vessel complies with the SOLAS Chapter II-1 Regulation 3-12, Code on noise levels on board ships.

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. The vessel has several storage tanks for appropriate management and discharge of drainage, sewage, rain water, and water used for cleaning cargo holds, to satisfy port restrictions on such discharges.

Principal particulars

L (o.a.) x B (mld) x d (mld):	299.97m x 50.00m x 18.30m
DWT/GT:	208,072t/109,872
Main engine:	MAN B&W 6G70ME-C9.5 diesel x 1 unit
Complement:	27
Registry:	Panama
Classification:	ClassNK
Completion:	January 24, 2020



Oshima completes 91,000DWT type bulk carrier, KIMIMACHI

Oshima Shipbuilding Co., Ltd. delivered 91,000DWT type bulk carrier to Pansy Line S.A. on January 8, 2020. This vessel was developed as optimized ship type for carrying coal and ore, and designed to achieve larger cargo hold capacity and deadweight with shallower draft.

The hull of the vessel is specifically strengthened according to notation IC-IS (ClassNK) to navigate in ice water areas. For example, the side shell within the ice belt is reinforced, an ice sea chest with ice water separation buffer plate and heating pipe are provided, and anti-freezing countermeasures for ballast water are taken. Additional countermeasures for low temperatures are provided in the crew accommodation.

For higher propulsion efficiency, an electronically controlled main engine and a high efficiency propeller are

equipped. Furthermore, Oshima developed energy saving devices, "Advanced Flipper Fins," "Rudder Fin" and "Seaworthy Bow" are installed for further improvement of propulsion efficiency.

Consequently, the vessel has achieved over 20% less from the IMO reference line of EEDI (Energy Efficiency Design Index), which requires reduced CO₂ emissions per deadweight and nautical mile. The SO_x scrubber is also installed in this vessel to comply with IMO SO_x regulations.

Principal particulars

L (o.a.) x L (b.p.) x B x D x d: 234.99m



x 230.00m x 43.00m x 18.40m x 12.884m (Summer)

DWT/GT: 91,296t/52,400

Loading capacity: 110,321m³

Main engine: Kawasaki MAN B&W 6S60ME-C8.5 x 1 unit

MCR: 10,800kW at 86.0rpm

Speed, service: about 14.3kt

Classification: NK

Completion: January 8, 2020

Sanoyas completes Panamax bulk carrier, MEDI FUJI

Sanoyas Shipbuilding Corporation completed construction of the MEDI FUJI (HN: 1367), a Panamax bulk carrier at its Mizushima Shipyard on February 19, 2020. The vessel is the 18th 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 to the previous 83,000DWT type. The vessel satisfies the Phase 2 level of EEDI regulations which apply to ships for which the building contract is placed on or after 1st January, 2013.

For improvement of propulsion efficiency, the vessel is equipped with low-speed & long-stroke electronically controlled main engine combined with a high-efficiency propeller and associated energy saving devices such as the Sanoyas "STF" (Sanoyas-Tandem-Fin (patent): max. 6% energy saving) on the stern shell and highly efficient appendages on the rudder, which also contribute to the reduction of CO₂ emissions.

Various eco-friendly features are provided such as the main engine complying with the NO_x emission Tier II limit for the prevention of air pollution,

SO_x scrubber complying with the SO_x emission limit, Ballast Water Treatment System and fuel oil tank protection for the protection of marine environment. In addition,

holding tanks for accommodation discharges, dirty hold bilge and rainwater on the upper deck are installed.

Furthermore, for improvement of maintenance, access trunks are arranged to allow access from the upper deck to the double bottom even under the laden condition. Wooden furniture in accommodation makes officers/crews comfortable in the vessel and safe maneuverability is achieved with the organized arrangement and rear visibility in the wheelhouse.

Principal particulars

Length (o.a.): 229.00m

Breadth (mld.): 32.24m

Depth (mld.): 20.20m

Summer draft (ext.): 14.668m

DWT/GT: 81,791t/43,496

Cargo hold capacity: 96,597m³ (grain)

Classification: ClassNK

Complement: 25

Speed, service: about 14.5kt (at c.s.o. with 15% sea margin)

Delivery: February 19, 2020



MORNING SPARROW

Owner: Nakata Maritime Corporation
 Builder: Minaminippon Shipbuilding Co., Ltd./Imabari Shipbuilding Co., Ltd.
 Ship type: 50,000DWT type chemical/product oil carrier
 L (o.a.) x B x D: 186.0m x 32.2m x 19.0m
 DWT/GT: 50,300t/30,000
 Main engine: 7S50ME-B9.5 diesel x 1 unit
 Speed, service: 15.0
 Classification: ClassNK
 Completion: March.16.2020



SEAVELVET

Owner: Sparkle Navigation Ltd
 Builder: Sumitomo Heavy Industries Marine & Engineering Co., Ltd.
 Hull No.: 1400
 Ship type: Crude oil carrier
 L (o.a.) x B x D: 237.00m x 44.00m x 21.80m
 DWT/GT: 111,925.2t/60,435
 Main engine: Hitachi MAN B&W 6G60ME-C9.5 diesel x 1 unit
 Speed, service: 15.0kt
 Classification: LR
 Registry: Malta
 Completion: March 23, 2020



CSC PREEMINENCE

Owner: China Steel Express Corporation
 Builder: Japan Marine United Corporation
 Hull No.: 5171
 Ship type: Bulk carrier
 L (o.a.) x B (mld) x D (mld) x d (mld): max.299.99m x 50.00m x 25.00m x 18.4m
 DWT/GT: 208,801t/106,910
 Main engine: MAN-B&W 7S65ME-C8.2 diesel x 1 unit
 Speed, service: 14.7kt
 Complement: 25
 Classification: CR/ABS
 Completion: March 27, 2020



FAIRCHEM ENDURANCE

Owner: Panamanian owner
 Builder: Shin Kurushima Dockyard Co., Ltd.
 Hull No.: S-6022
 Ship type: Chemical tanker
 L (o.a.) x B x D : 151.5m x 27.1m x 14.2m
 DWT/GT: 25,986t/16,589
 Main engine: 6S46ME-B8.5 diesel x 1 unit
 Speed, service: 14.95kt
 Classification: ClassNK
 Registry: Panama
 Completion: February 2, 2020



CHALLENGE PROSPECT II

Owner: Bluejay Maritime S.A.
 Builder: Onomichi Dockyard Co., Ltd.
 Hull No.: 757
 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: 49,995t/29,513
 Main engine: Mitsui MAN B&W 6S50ME-B9.5 diesel x 1 unit
 Speed, service: 15.1kt
 Classification: ClassNK
 Registry: Liberia
 Completion: Jnauary 23, 2020



IKAN BILIS

Owner: Bright Carrier S.A.
 Builder: Tsuneishi Shipbuilding Co., Ltd.
 Hull No.: 1592
 Ship type: Bulk carrier
 L (o.a.) x B x D: 229.00m x 32.26m x 20.00m
 DWT/GT: about 81,600t/43,400
 Main engine: MAN B&W 6S60MEC-8.2 diesel x 1 unit
 Speed, service: 14.50kt
 Classification: ClassNK
 Registry: Marshall Islands
 Completion: April 16, 2020

