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Imabari Shipbuilding completes new super dock at Marugame

Imabari Shipbuilding Co., Ltd. held a ceremony in its shipyard on September 19 to celebrate the recent completion of a new dock at its Marugame Headquarters. The event was attended by some 1,000 guests including top business leaders representing the Japanese maritime businesses, who congratulated the company on the completion of the first large shipbuilding facility to enter service in many years.

The newly completed dock, measuring 610m in overall length and 80m in breadth, is equipped with three goliath cranes each with a lifting capacity of 1,330 tons and two 50-ton lifting cranes to support the larger cranes. The new dock is intended to prepare the yard for the construction of mega containerships. The dock is supported by a steel processing shop, an assembling shop and a surface plate for general assembly.

The ceremony was held in a special party site on the vast surface plate for general assembly, which was newly built next to the new dock. The party started with the ceremonial water injection to launch a 20,000TEU class containership built to the order of Mitsui O.S.K. Lines as the first vessel to be constructed in the new dock. President Yukito Higaki and a few other guests activated the inflow of water into the dock. In his speech, Mr. Higaki said, "The newly completed dock will enable us to build high quality ships with high productivity. By fully utilizing this large facility, we shall be able to positively respond to inquiries about not only series of large containerships but also VLCCs and Vale Max ore carriers." He added, "This facility will mark a significant new page in our history" and "We would like to meet various new challenges to keep the economy and industry of the Seto Inland Sea area active and continue to build ships here." The President was considering the completion of the dock and the construction of the 20,000 TEU containership to be followed by completion of a test tank and completion of an LNG carrier.

In the dock completion ceremony, the first product of the dock (a 20,000TEU container carrier) was launched. Mr. Yukito Higaki, president of Imabari Shipbuilding (fourth from the left), pressed the launching button and told the celebrating guests what he expected of the new shipyard and the future of shipbuilding. His speech was followed by congratulatory messages by distinguished guests who were present, including Governor Keizo Hamada of Kagawa Prefecture (sixth from the left).

Mr. Atsumi Gamou, Director-General of the Maritime Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT), one of the VIP guests at the party, said in his congratulatory address, "It is my sincere wish that the completion of this dock will mark a new leap forward for Imabari Shipbuilding, one of the leading shipbuilders in Japan, especially as competition from ROK and China is intensifying. Mr. Koichi Muto, President of The Japanese Shipowners' Association, (JSA) expressed his expectation in these words, "We in the Japanese shipping business community feel very much encouraged by the outlook that the nation's shipbuilding industry will continue to supply high-quality and competitive vessels. The containership under construction in the new dock is expected to be operated by an integrated liner operation from next April onward, and we are looking forward to having the highly competitive vessel as a new member of the Japanese fleet. Governor Keizo Hamada of Kagawa Prefecture said, "We feel encouraged by the presence of Imabari Shipbuilding when the prefectural government is doing its best to support strong businesses."

New dock outline

Previously large ships of more than 300m in overall length have been built at the Saijo Shipyard and the Hiroshima Shipyard. However, shipowners with recent newbuilding projects for containerships have required construction of nine to 11 vessels in a short period and the standard size of containerships has recently become much greater, the biggest of which measures 400m in overall length for a per-vessel capacity of 20,000 TEUs. The biggest construction facility of Imabari Shipbuilding is 420m in overall length at the Saijo Shipyard. Consequently, Imabari could not build ten 20,000TEU containerships per year.

400m-long ship built by the semi-tandem method

The third goliath crane for the new Marugame Dock was installed there,

(Comtinirf on Page 2)

New Marugame Dock Facilities

Dock capacity: 610m L x 80m W x 11.7m D
220,000DWT building capacity

Auxiliary facilities of dock
- Gate (flap type): 80m L x 6m B, 11.3m H
- Drain pump capacity: 27,000m³/h x 2
  (About 7.8 hours to complete draining)

Cranes
- (1) Three 1,330-ton gantry cranes
  - Maximum lifting capacity: 1,330t; span: 182m
  - Main trolley lift: 79m; auxiliary trolley lift: 81.5m
- (2) Two 50-ton jib cranes: 50/3t x 90/35m, lift: 83m

Mobile sheds:
- Two sheds each measuring 68.7m in rail gauge and 60m in length

(Continued from Page 3)

which fully readied the dock for its intended purpose. The steel fabricating and the block assembly shops were already completed to redesign the new Marugame Dock.

This crane capacity significantly enhances the production efficiency of the yard. The goliath cranes cover even the general assembling surface plate. Using two of these cranes, a 2,000-ton class block can be mounted en bloc in the dock.

This expanded capacity is fully utilized for constructing one ship and a half ship at the same time in the dock by a semi-tandem construction method. On the seaside part of the dock, one full-size hull is built, and behind it the stern part of the next ship is assembled ahead of its full-size building.

The completion of the new Marugame Dock enables Imabari Shipbuilding to construct 15 or 16 mega containerships a year at its three works at Marugame, Saijo and Hiroshima. The yearly completion targets for the 20,000TEU capacity are 6.5 ships for Marugame and 3.5 for Saijo, totaling 10 a year.

Test tanks to be completed in 2020

Imabari Shipbuilding is undertaking another project at the Marugame Headquarters to attain the company's target to raise both the quantity and quality of its shipbuilding. The main feature of this project is the construction of test tanks on the north side of the site with the completion target set for 2020. In addition to a towing tank, a seaworthiness testing tank is also under construction. The latter will be equipped with a wave-making device for checking the resistance of hulls to waves and maneuvering performance of ships.

Tier III NO_x regulations-compliant diesel engine for coal carrier

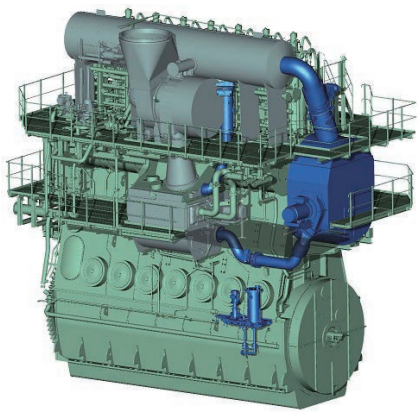
Mitsui Engineering & Shipbuilding Co., Ltd. (MES) will build a diesel engine for a coal carrier to be constructed by Imabari Shipbuilding Co., Ltd. This engine incorporates a high pressure exhaust gas recirculation (EGR) system compatible with low-sulfur fuel developed by MES for attaining compliance with the third NO_x regulations. In the world of international marine transportation, environmental regulations established by the International Maritime Organization (IMO) are being toughened. According to Tier III regulations that have been effective since 2016, nitrogen oxides (NO_x) emissions from ships must not exceed 3.4 g/kWh in the emission control areas. This value is 80% lower than the level set in the Tier I regulations.

MES has conducted ground tests using a trial diesel engine installed in the machinery factory in the Tamano Works and tests on operating ships to carry out actions for developing NO_x reduction and other technologies for meeting different environmental regulations on a real machine basis. In December last year, the first decision was made in Japan to adopt this high pressure EGR system. The decision made by Imabari Shipbuilding is the second instance of this system being adopted.

MES' high pressure EGR system is designed to recirculate part of the exhaust gas from the engine to the scavenge pipe to lower the combustion temperature and thereby reduce NO_x generation. The principal component of the EGR system is built into the engine to achieve compact system configuration. Among different technologies for meeting NO_x regulations, this system has a relatively limited impact on the design of the engine room.

The Mitsui MAN B&W 7G60ME-C9-EGRBP is set to be mounted on one 140,000DWT-type coal carrier to be built by Imabari Shipbuilding and operated by Mitsui O.S.K. Lines, Ltd. for Shikoku Electric Power Co., Inc.

As Japan's leading manufacturer of large-sized, low-speed diesel engines for ships, MES is pressing ahead with the development of technologies for meeting not only NO_x regulations but also SO_x regulations and for CO_2 emissions reduction (energy conservation). As part of these actions, it is working to respond to the diversification of fuels. MES will broaden its lineup of products including systems for ME-GI (methane and heavy oil), ME-GI-Ethane (ethane and heavy oil) and ME-LGI (methanol, LPG or other with heavy oil), which MES has already manufactured.



For LNG carrier operation management

Kawasaki receives 1st order for big-data-applied "SOPass"

Kawasaki Heavy Industries, Ltd. has developed the Ship Operation and Performance analysis support system (SOPass) based on big data technology, and received the first order for SOPass from Mitsui & Co., Ltd. The first SOPass will be installed on a KHI-built LNG carrier to be chartered by Mitsui.

SOPass incorporates new cloud-server features and machine learning to improve on and integrate the functions of existing systems, including the Kawasaki-Integrated Maritime Solutions comprehensive ship information system which provides information regarding optimal routes for standard cargo vessels, and the LNG Carrier satellite Network Observation (LNGC-NEO) and LNG Carrier Integrated Solution Support (LNGC-ISS) ship operation control support systems designed specifically for LNG carriers and enable fuel consumption analysis. SOPass also includes newly developed LNG cargo management optimization functions, among the first in the industry, intended for use in LNG carriers.

SOPass can be used on a wide variety of vessels to enable optimal route proposals and visual representation of cargo and engine area operating conditions for more economical and safer ship operations. The SOPass offers the following advantages.

Analysis and learning from fuel consumption data, weather-related information, hull condition data and other operational data stored on cloud servers allows the SOPass to propose sea routes that are safe and use the least amount of fuel, and to issue automated reports on predictions of future fuel consumption, ship speed, maintenance requirements, and so forth to reduce ship operating costs and improve overall safety.

An industry-first set of functions designed specifically for LNG carriers enables management of natural gas, which undergoes natural evaporation during shipping (boil-off gas), and to propose sea routes that consume the least amount of fuel and operations with the optimal heel amounts, which is the volume of LNG left in cargo tanks to be used as refrigerant for cooling as well as fuel for the ship on a ballast voyage.

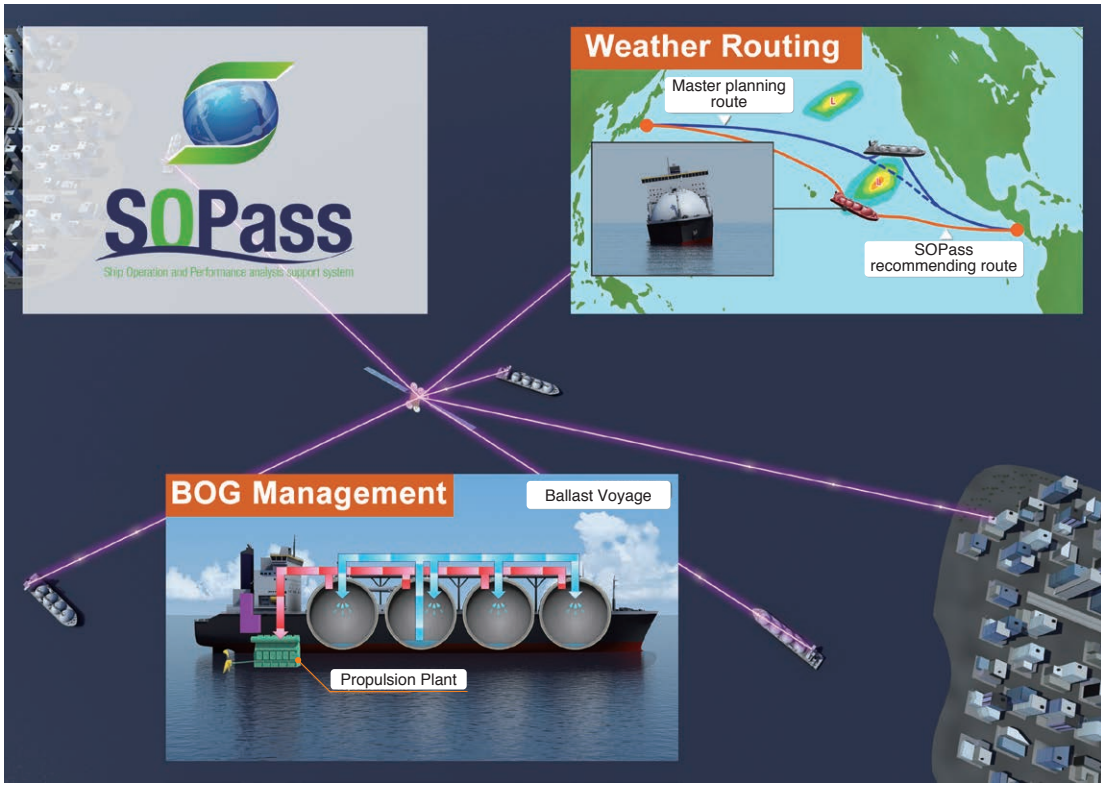
SOPass also allows for the creation of system functions tailored to individual user needs. The version of SOPass ordered by Mitsui will be customized and designed together with the client to ensure system features that match the user approaches and requirements.

Collaborative efforts with the Ship Data Center Co., Ltd. (ShipDC), a wholly owned subsidiary of Nippon Kaiji Kyokai (ClassNK), the non-profit ship classification society of Japan have allowed Kawasaki to launch a private cloud server network featuring a reliable classified information protection and information management system incorporating countermeasures against information leakage, computer viruses and other threats.

SOPass is a highly versatile general-purpose system that can be installed in existing vessels as well as newly built ships.

Kawasaki will respond to various customer needs regarding advancements in the field of ship operation management systems by utilizing Information Communication Technologies (ICT) and Internet of Things (IoT) technologies as well as the synergy between the broad range of technologies possessed by the Kawasaki Group to contribute to further developments in the maritime industry.

Newly developed Ship Operation and Performance Analysis Support System (SOPass) utilizing big data technologies (Below)



Tsuneishi completes cruise ship, “guntû,” for Setouchi Cruise, Inc.

Tsuneishi Shipbuilding Co., Ltd. completed the small luxury cruise ship “guntû*” to Setouchi Cruise, Inc., and the ship was privately exhibited at the Bella Vista Marina, Onomichi, on September 14. Setouchi Cruise, Inc., an operator owned by Setouchi Holdings, has operated the “guntû” in cruising service covering the Seto Inland Sea areas from October 17. (* *The vessel name “guntû” is derived from the dialect name of Charybdis japonica (a kind of crab) in the Onomichi district.*)

The cruising ship will visit scenic spots in the Seto Inland Sea, where the ship will anchor off the shore at night without calling at a port. The ship is designed to combine the ship hull with typical Japanese architecture using wood. The appearance is very unique with a gabled roof top as seen in the attached photo. Various and splendid seascape cruising routes are arranged, and pleasure seekers can enjoy two- or three-day cruises.

The appearance and interior is created based on the concept that the ship will harmonize with the scenery of the Seto Inland Sea. The ship top is covered with a gabled roof based on an image of tile roofs in the Seto districts making the ship resemble a typical Japanese-style “Ryokan” (a hotel). The ship’s hull is coated with silver color to assimilate into the surroundings. Wood materials are fully used for the interior, most of which are fireproof compliant with requirements for ship safety standards. Two tender boats are provided to go on shore or allow enjoying various activities.

The ship consists of four decks, the top deck of which is Deck 3, and Decks 2 and 1 follow. Deck 3 is a public space used for a main dining room, a sushi counter, cafe-bar, and lounge. Decks 2 and 1 are mainly used as passenger cabins. Deck 1 has the boarding entrance, and an activity space at the stern, where the tender boats are accommodated. The wheelhouse is also located at the bow of Deck 1. The lower deck is used accommodation quarters for the crew members and the engine room.

A total of 19 passenger cabins are available in four types with a space ranging from 50m² to 90m². Each cabin is limited to two persons. Other available facilities include a restaurant, bar, large bath room, beauty treatment room, and gym.

Principal particulars

Operator:	Setouchi Cruise, Inc.
Builder:	Tsuneishi Shipbuilding Co., Ltd.
Ship type:	Cruising ship
Length (o.a.):	81.2m
Breadth (mld.):	13.75m
Depth (mld.):	4.4m
Draught (mld.):	2.4m
GT:	3,013
Main propulsion motors:	Water-cooled three-phase induction motors x 2 units
Cruising speed:	10kt
Complement	38 passengers 46 crew members
Classification:	JG

Lounge on the Deck 3

Four suite rooms available: The guntû suite, Grand suite (photo), Terrace suite with an open-air bath, and Terrace suite

Communal bath on the Deck 2

Long bench seats to stretch out the legs in the promenade on Deck 3

Beautiful view from the stern of Deck 3

Photo-Tetsuya Ito Courtesy of Setouchi Cruise

SAKIZAYA ORCHID

Owner: Sakizaya Orchid S.A.
Builder: Imabari Shipbuilding Co., Ltd./Shin Kasado Dockyard Co., Ltd.
Ship type: Bulk carrier
L (o.a.) x B x D: 228.90m x 32.24m x 20.00m
DWT/GT: 81,588t/43,700
Main engine: MAN B&W 6S60ME-C8.2 diesel x 1 unit
Speed, service: 14.5kt
Classification: NK
Completion: October 24, 2017

HIMAWARI 8

Owner: Nippon Express
Builder: Mitsubishi Heavy Industries, Ltd.
Hull No.: 1200
Ship type: Ro/Ro ship
L (o.a.) x B x D x d (ext.): 166.90m x 27.00m x 23.27m x 6.85m
DWT/GT: 6,138t/10,626
Main engine: MAN B&W 9S50ME-C8.5 diesel x 1 unit
Speed, service: 23kt
Complement: 25 (including 11 passengers)
Classification: NK
Completion: August 29, 2017

AMBELOS

Owner: HFS. Wave. Shipping. Co., Ltd.
Builder: Namura Shipbuilding Co., Ltd.
Hull No.: 434
Ship type: Crude oil carrier
L (o.a.) x B x D x d: 249.97m x 44.00m x 21.20m x 14.80m
DWT/GT: 114,674t/63,484
Main engine: MAN B&W 6G60ME-C9.5 diesel x 1 unit
Speed, service: abt. 14.40kt
Classification: LR
Complement: 30
Delivery: September 26, 2017

MARITIME CHALLENGER

Owner: Mercy Navigation Pte. Ltd.
Builder: Oshima Shipbuilding Co., Ltd.
Hull No.: 10811
Ship type: Multipurpose vessel
L (o.a.) x B x D x d (ext.): 199.99m x 36.00m x 18.54m x 13.059m
DWT/GT: 64,794t/39,744
Main engine: Kawasaki-MAN B&W 6G50ME-B9.3 diesel x 1 unit
Speed, service: 14.60kt
Registry: Singapore
Classification: ABS
Completion: July 14, 2017

AMBORELLA

Owner: Nissho Shipping Panama Inc.
Builder: Naikai Zosen Corporation
Ship type: Ore carrier
L (o.a.) x L (b.p.) x B x D x d: 160.80m x 154.50m x 26.00m x 14.00m x 9.88m
DWT/GT: 27,402t/16,774
Cargo hold capacity: 20,955.8m^3
Main engine: Hitachi MAN B&W 6S42MC7.1 diesel x 1 unit
NOP: 4,165kW x 121.3min^{-1} (at 85%)
Speed, service: 13.5kt
Complement: 24
Registry: Panama
Classification: NK
Completion: September 8, 2017

Cover Photo

The christening ceremony and the launching ceremony are usual practices in the maritime world even today. The christening is followed by champagne bottle breaking as you see here, and the new ship slowly slides down onto the sea surface. The series of ceremonies unite the minds of watchers in nostalgy.