

JSMEA attends OTC 2014

The Japan Ship Machinery and Equipment Association (JSMEA) made great efforts to promote Japan-made ship machinery and equipment products for offshore oil and gas projects at the 2014 Offshore Technology Conference (OTC 2014). With financial assistance from The Nippon Foundation, it organized a booth jointly with Nippon Kaiji Kyokai (ClassNK) at the international event held on May 5-8 at Reliant Park in Houston, Texas.

The annual OTC, the world's largest exhibition for the offshore business, celebrated its 46th anniversary this year.

OTC 2014 hosted 2,568 exhibiting enterprises, an increase of 163 from the year before, representing 43 countries and regions, while the area of the venue was expanded to 680,025 square feet from the previous event's 652,185 square feet. The

conference welcomed a total of 108,300 visitors, which was a record number.

During OTC 2014, state-run and private oil companies, owners of drilling rigs and floating ocean structures, engineering firms, manufacturers and other entities set up booths, at which they all worked hard to promote their respective new product technologies and other items with displays of actual machinery and equipment, and through presentations and many other efforts.

For its part, the JSMEA visited the booths of its customers from various nations to vigorously market Japanese offshore products by distributing copies of its self-published brochure "Japanese marine equipment supporting for OFFSHORE."

While OTC 2014 was ongoing, JSMEA executives



and other employees organized a team with staff members of accompanying affiliated companies to visit two local enterprises. They called on Mr. Katsuyuki Imaizumi, vice-president, sales and marketing at MODEC International Inc., and Mr. Masunao Maeda, its director of sales. The delegation also went to GustoMSC Inc. to meet with Mr. Nils van Nood, president and CEO of GustoMSC B.V., and Mr. Fernando C. Frimm, president of the Netherlands-based offshore machinery and equipment designing and engineering firm's Houston affiliate.

With copies of its brochure, the delegation gave briefings on the progress made in the association's efforts began last year for members to enter the offshore market. Question and answer sessions were held between the JSMEA mission and the host businesses. Members of both sides exchanged information on,



among other subjects, ongoing activities in the offshore business and ways for Japanese enterprises to gain ground in the offshore market.

Also, Mr. Shinzo Yamada, vice-chairman of the JSMEA, and Mr. Shigeharu Oda, leader of the association's Offshore Working Group (WG), together paid a courtesy call to the Consulate-General of Japan in Houston. The two JSMEA heavyweights explained their association's participation in the offshore business and exchanged opinions on local and other affairs.

To promote and encourage more of its member companies to launch operations in the offshore business, the JSMEA intends to have its Offshore WG continue to discuss effective ways to this end. It also decided to return to future OTCs.

JSMEA visits MODEC International



Front row from left: Mr. Masunao Maeda, director of sales, MODEC International; Mr. Katsuyuki Imaizumi, vice-president, sales and marketing, MODEC International; Mr. Shigeharu Oda, leader, Offshore WG, JSMEA and Mr. Shoichi Kitamura, executive managing director, JSMEA



Business cards are exchanged between the parties.

JSMEA calls at GustoMSC



Front row: Mr. Shoichi Kitamura, executive managing director, JSMEA (fourth from left) and back row: Mr. Masunao Maeda, director of sales, MODEC International (third from left); Mr. Fernando C. Frimm, president, GustoMSC Inc. (fourth from left); Mr. Shinzo Yamada, vice-chairman, JSMEA (fifth from left) and Mr. Nils van Nood, president and CEO, GustoMSC B.V. (fifth from right)



JSMEA delegation members hold a meeting with GustoMSC executives and other employees.



JSMEA member companies give briefings on their respective products.



The JSMEA shows its brochure "Japanese marine equipment supporting for OFFSHORE."

JSMEA pays courtesy visit to Consulate-General of Japan in Houston



Mr. Shoichi Kitamura, executive managing director, JSMEA (second from left); Mr. Shigeharu Oda, leader, Offshore WG, JSMEA (third from left); Mr. Shinzo Yamada, vice-chairman, JSMEA (fourth from left) and Consul-General Nozomu Takaoka (fourth from right)



The JSMEA and ClassNK jointly run a booth at OTC 2014.

JSMEA participates in Sea Japan 2014

The Japan Ship Machinery and Equipment Association (JSMEA) took part in the 11th Sea Japan international maritime exhibition.

During Sea Japan 2014, a Japan pavilion was placed at the center of an exhibition hall in Tokyo Big Sight on April 9-11. The pavilion was divided into two areas, of which one was made up of various zones. These separate zones, with financial support from The Nippon Foundation, allowed exhibitors to display and promote their products in marine resource development, energy saving and other high-level technologies boasted by the Japanese maritime cluster (ship owners, shipbuilding companies, ship machinery and equipment manufacturers, research institutes, universities and colleges, a classification society and other parties). Study results and other announcements were also unveiled in the zones. The other area was established for 56 JSMEA member companies and Nippon Kaiji Kyokai (ClassNK).

An opening ceremony was held on April 9, the first day of Sea Japan 2014, at which Vice-Minister for International Affairs Ryuji Masuno of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) gave an opening address. A congratulatory message from Prime Minister Shinzo Abe was also read. After President Takeju Ogata of The Nippon Foundation delivered a speech, representatives of the supporting organizations gathered for the ribbon cutting.

While Sea Japan 2014 was ongoing, the Japan pavilion allowed exhibitors to give presentations from time to time, all of which attracted so much attention that some visitors who were unable to find seats were resigned to standing, showing that there was great interest in the exhibitions and presentations.

As sideline projects of Sea Japan 2014, highly regarded local and overseas experts held seminars on international maritime affairs and technologies for protecting the sea environment. Both were well attended by many visitors.

To help make the maritime industry more appealing to young people, in whose hands rest the future, various events were given for students. They were given opportunities to visit the many exhibits at Sea Japan 2014, attend a lecture on the maritime

industry and join a get-together where interchange was encouraged.

The number of visitors to Sea Japan 2014 reached a record high, alluding to the success of the event to promote the presence of the Japanese maritime cluster among Japanese and overseas visitors.

Various data and other items of information related to Sea Japan 2014 are detailed below.

(1) Sea Japan 2014

(1-1) Sea Japan 2014

Number of exhibitors: 489 (289 domestic and 200 overseas) enterprises and organizations from 27 countries and regions (Sea Japan 2012: 466 enterprises and organizations)

Number of visitors: 18,672 (a record high)—6,158 on Wednesday, April 9; 5,997 on Thursday, April 10 and 6,517 on Friday, April 11

*Figures are provided by the organizer.

(1-2) Japan pavilion

(1-2-1) Thematic Zones

(a) Catch copy: "Compete over technology for the ocean of the future!"

(b) Components: Zones for ship owners, and the Ministry of Defense (MOD) and the Japan Coast Guard (JCG) as well as those promoting energy-saving technologies, environmental technologies, natural gas-fueled ships, the development of marine resources, concept ships and eco-ships, quality control management and international coordination, and technologies for safety, security and disaster prevention

(2) International maritime affairs seminar

Date: Wednesday, April 9

Section 1: Seminar for commemorating the 50th anniversary of Japan's accession to the Organisation for Economic Co-operation and Development (OECD): "Green Frontier—Eco-friendly Growth in the Maritime Industry"

Section 2: "Marine Development Innovation—a Challenge to Marine Frontier"

(3) Marine environmental technology seminar

Date: Friday, April 11

(4) Events for students

Date: Friday, April 11

Opening ceremony held on Wed., April 9



Vice-Minister for International Affairs Ryuji Masuno of the MLIT



President Takeju Ogata of The Nippon Foundation



A ribbon cutting is performed at the beginning of the opening ceremony.



The opening ceremony is held at the Japan pavilion.

Exhibitions at Sea Japan 2014



The 9th JSMEA-KOMEA Chairman Meeting



The ninth JSMEA-KOMEA Chairmen's Meeting is held on April 10. The annual meeting is convened alternately by the JSMEA and the KOMEA in conjunction with Sea Japan and Kormarine, respectively.

JSMEA participates in Posidonia 2014

The Japan Ship Machinery and Equipment Association (JSMEA) participated in Posidonia 2014—The International Shipping Exhibition. With financial support from The Nippon Foundation, the JSMEA led a 16-member delegation at the event, which was held in Athens, Greece on June 2-6, 2014. As previously, the JSMEA joined hands with the Japan Ship Exporters' Association (JSEA) to set up the Japan pavilion again near the entrance of the venue, representing both the Japanese shipbuilding and ship machinery and equipment industries.

On June 2, before the opening of Posidonia 2014, JSMEA Chairman Motoyoshi Nakashima paid a courtesy visit to Japanese Ambassador to Greece Masuo Nishibayashi. Mr. Nakashima provided for the ambassador details of products, technologies and others to be displayed, and shared views on the Greek shipping industry. At 5:30 p.m., Mr. Nakashima, Mr. Nishibayashi and JSEA President Kazuaki Kama jointly opened the Japan pavilion with a ribbon-cutting ceremony. At 6 p.m., the organizer officially kicked off the trade fair, where Greek Prime Minister Antonis Samaras gave an opening address. After the opening ceremony, Mr. Samaras and other local heavyweights walked through the international exhibition.

Ribbon cutting held at Japan pavilion

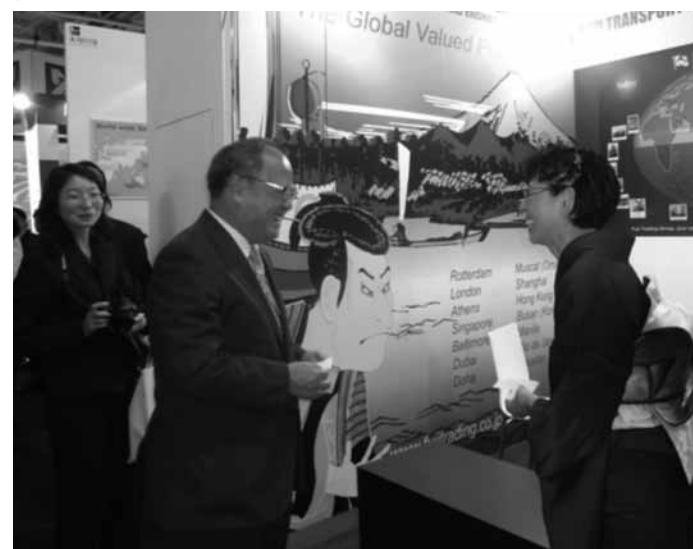


(From left) JSEA President Kazuaki Kama, Ambassador Masuo Nishibayashi and JSMEA Chairman Motoyoshi Nakashima

On June 3, the JSMEA visited the Union of Greek Shipowners (UGS), accompanied by six member companies. The delegation met with four executives, including Mr. George A. Gratsos, who is a member of the UGS board of directors, chairman of the UGS Maritime Safety and Marine Environment Protection Committee and president of the Hellenic Chamber of Shipping. JSMEA members made presentations on their respective products and provided other up-to-date information. With so many questions and answers, the meeting, which had been scheduled for only an hour, went much longer.

On June 4, the third day of Posidonia 2014, the JSMEA held a Japan-Posidonia Seminar at the Metropolitan Expo Centre in partnership with the Ministry of Land, Infrastructure, Transport and Tourism (MLIT); the JSEA; and Nippon Kaiji Kyokai (ClassNK), supported by The Nippon Foundation. The seminar reached capacity with more than 200 attendees by the start of the event. In the first half, which focused on shipbuilding, three JSEA members each gave presentations, and answered many questions from the audience. In the second half, during which discussion of ship machinery and equipment manufacturing took place, six JSMEA member companies unveiled their respective

Ambassador Nishibayashi visits Japan pavilion



new products, technologies and others that were designed to help their users save energy and protect the natural environment. At the end of the seminar, Mr. Nishibayashi gave a closing address.

Armed with a newly printed booklet, "Japanese Marine Eco-Products," the JSMEA extensively promoted member companies' energy-saving and eco-friendly products during, for example, visits to local ship owners in Greece as well as at Posidonia 2014 and the aforementioned seminar. As a fun promotion, the Japan pavilion encouraged guests to collect stickers from Japanese companies operating booths at the pavilion. The treasure hunt game was designed to attract more visitors to the Japanese booths. Unlike other similar international exhibitions, Posidonia attracts many children and students; though the idea of collecting stickers from Japanese exhibitors was enjoyed by many adults, too.

Posidonia 2014 welcomed 19,412 visitors, according to the organizer, Posidonia Exhibitions S.A. The number was an increase over last time, meaning this year's international trade fair was, attendance-wise, equally or more successful. The 16 JSMEA members, for their part, were all active in public relations activities. Not only with

introducing their products, but also in boasting the excellence and reliability of the Japanese ship machinery and equipment industry. Thanks to these efforts, the event came to an end on a very high note. The JSMEA is deeply grateful to the many interested parties who contributed to supporting the event, including exhibitors.

Number of exhibitors and visitors

Exhibitors: 1,843 enterprises and organizations
(from 93 countries and regions)

Visitors: 19,421

Total floor area covered by JSMEA members:

253.75 square meters

Number of JSMEA members attending Posidonia 2014:
16

JSMEA members that operated booths: Azuma Kako Co., Ltd., the Ecomarine Technology Research Association, Taiko Kikai Industries Co., Ltd., Daihatsu Diesel Mfg. Co., Ltd., Nippon Paint Marine Coatings Co., Ltd., Hitachi Zosen Corporation, Fuji Trading Co., Ltd., Manabe Zoki Co., Ltd., Miura Co., Ltd., Mitsubishi Heavy Industries Marine Machinery and Engine Co., Ltd., Yanmar Co., Ltd. and Yokogawa Electric Corporation

JSMEA members that displayed panels: Shinko Ind. Ltd., Naniwa Pump Mfg. Co., Ltd., Nabtesco Corporation and Tobu Jukogyo Co., Ltd.

Venue of Posidonia 2014



JSMEA visits UGS



<UGS group>

Mr. George Gratsos; Mr. Dimitrios Fafalios, a local ship owner; Mr. Yannis Kappas, another local ship owner and Mr. John Andreopoulos, another executive of the UGS.

<JSMEA delegation>

Chairman Motoyoshi Nakashima; Executive Managing Director Shoichi Kitamura; Daihatsu Diesel Mfg. Co., Ltd.; Nakashima Propeller Co., Ltd.; Nippon Paint Marine Coatings Co., Ltd.; Teikoku Machinery Works, Ltd.; Tobu Jukogyo Co., Ltd.; and Yanmar Co., Ltd.

JSMEA participates in Marintec South America 2014

The Japan Ship Machinery and Equipment Association (JSMEA) participated in this year's Marintec South America 2014 on Aug. 12-14 in Rio de Janeiro. With financial support from The Nippon Foundation, it ran a Japan pavilion together with member and non-member companies as well as the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) during the international maritime exhibition. It was the association's fifth consecutive year at Marintec South America, having made its debut at the trade fair in 2010.

At the pavilion, the Japanese public and private sectors—which were represented by the MLIT and nine JSMEA-affiliated companies & one nonmember firm, respectively—together conducted public relations activities and displayed informational panels and copies of publications (see Note #1). The Japan pavilion welcomed visitors from the National Agency of Petroleum, Natural Gas and Biofuels (ANP) as well as *Petróleo Brasileiro S.A.* (Petrobras), *Petrobras Transporte S.A.* (Transpetro) and many other local private enterprises.

The three-day Marintec South America 2014 exhibition came to a successful close.

On Aug. 11, a day before the opening of Marintec South America 2014, the MLIT called a round-table meeting, assembling interested parties from the Japanese and Brazilian governments and private companies. On behalf of Japan, JSMEA Vice-Chairman Shinzo Yamada and executives of many ship machinery and equipment makers attended the meeting, which was convened for the fourth time. They delivered speeches and gave presentations to guests from local enterprises. From the Brazilian side, meanwhile, the Ministry of Development, Industry and Foreign Trade (MDIC) gave briefings on projects that Brazil is promoting now, while Petrobras unveiled its plans (see Note #2).

After the round-table meeting, the JSMEA and Nippon Kaiji Kyokai (ClassNK) held a joint reception, inviting many individuals from the Japanese and Brazilian public and private sectors who are concerned in maritime affairs. Promoted as "Japan Night", the reception welcomed 116 guests, including some 70 from Brazil. Friendship was promoted among the guests, who represented the ANP, Petrobras and Transpetro as well as shipping companies, shipyards and ship machinery and equipment manufacturers of both countries.

While in Brazil, the JSMEA made the most of the trip by paying visits, between Aug. 12 and 15, to the Consulate General of Japan in Rio de Janeiro, the National Association of Naval Industry (SINAVAL) and several local companies including Transpetro and Petrobras as well as AMEC Kromav S.A. and Projemar S.A., with the accompaniment of member companies, which included three shipbuilding companies. The JSMEA delegation elucidated the association's current programs, with the help of its brochure entitled "Japanese marine equipment supporting for OFFSHORE," booklet called "Japanese Marine Eco-Products," and other self-produced publications. Delegation members answered questions asked by the local partners. The JSMEA mission exchanged views with the visited companies, gathered information on projects and plans they were promoting and learned how they could take part in them.

On Aug. 18, the JSMEA visited Engevix Construções Oceânicas S.A. (ECOVIX) together with member companies that had interest in paying a call on the Rio de Janeiro-based shipbuilding giant, in which Mitsubishi Heavy Industries, Ltd.; Imabari Shipbuilding Co., Ltd.; Namura Shipbuilding Co., Ltd.; Oshima Shipbuilding Co., Ltd. and Mitsubishi Corporation have stakes. On Aug. 20, the JSMEA took the companies to Paraguay to pay a visit to Astillero Tsuneishi Paraguay S.A.. The delegation inspected future projects and existing shipbuilding facilities, and exchanged views with Astillero Tsuneishi Paraguay executives and other workers on the possibility of exporting products from Japan to the South American nation's market.

In the five years since the JSMEA first attended Marintec South America in 2010, there have been many drastic changes. For example, major shipbuilders in Japan have since begun investing in shipyards in Brazil. The association felt during its August visit to Brazil that it received a certain level of admiration from local parties for its efforts to promote the offshore business. Brazil, for its part, pointed out challenges that Japan needs to overcome when exporting domestic ship machinery and equipment products to the Brazilian market. Taking into consideration the exchanges that it made with local partners, the JSMEA deemed the trip a success.

The JSMEA intends to discuss at the Offshore Working Group (WG) of its Global Strategic Plan Review Board ways to overcome these challenges in the near future.



JSMEA Vice-President
Shinzo Yamada



ClassNK Chairman/President
Noboru Ueda



SINAVAL Vice-President
Franco Papani



Consul General Yasushi Takase



Note#1 Members of the Japan Pavilion
JSMEA member companies that had booths: Kawasaki Heavy Industries, Ltd.; Daihatsu Diesel Mfg. Co., Ltd.; Fuji Trading Co., Ltd.; Mitsubishi Heavy Industries, Ltd.; Musashino Co., Ltd. and Yanmar Co., Ltd.

JSMEA member companies that displayed panels: Ushio Reinetsu Co., Ltd.; Shinko Ind. Ltd. and Nakashima Propeller Co., Ltd.

Shipbuilding companies: Kawasaki Heavy Industries, Japan Marine United Corporation and Mitsubishi Heavy Industries

The government of Japan: the Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Note#2 Speakers at the 4th Japan-Brazil public-private round-table meeting

From Brazil: the Ministry of Development, Industry and Foreign Trade (MDIC); *Petróleo Brasileiro S.A.* (Petrobras); AMEC Kromav S.A. and the Brazilian Machinery and Equipment Association (ABIMAQ)

From Japan: the MLIT; the Consulate General of Japan in Rio de Janeiro; *Estaleiro Atlântico Sul S.A.*; Mitsubishi *Indústrias Pesadas do Brasil Ltda.*; Nippon Kaiji Kyokai (ClassNK); Daihatsu Diesel Mfg. Co., Ltd.; Fuji Metalock Brasil S.A.; Fukui Seisakusho Co., Ltd.; JRC do Brasil *Empreendimentos Eletrônicos Ltda.*; Musashino Co., Ltd.; Nakashima Propeller; Nippon Paint Marine Coatings Co., Ltd. and Yanmar

JSMEA attends SMM Hamburg 2014, IMPA London 2014

The Japan Ship Machinery and Equipment Association (JSMEA) together with member companies took part in SMM Hamburg 2014 and IMPA London 2014 with financial support from The Nippon Foundation.

SMM Hamburg 2014 hosted more than 2,100 exhibitors and welcomed over 50,000 visitors in total on Sept. 9-12, according to an announcement made by the organizer. The JSMEA delegation was joined by 20 affiliated companies, and secured an area of 405 square meters in Hall B7. At 3 p.m. on Sept. 9, the first day of the event, the delegation gave an opening party at the Japan pavilion, inviting local ship owners and other interested parties. Following a Japanese traditional kagamiwari ceremony of breaking sake casks, many ship owners, shipbuilding concerns and other visitors flocked to the pavilion. While SMM Hamburg 2014 was going on, the JSMEA also paid courtesy calls to organizations with which it began interchanges two years ago: the German Shipowners' Association (VDR) and the German Shipbuilding and Ocean Industries Association (VSM). The association gave briefings on Japanese ship machinery and equipment that can be used inside the Emission Control Areas (ECAs), which have been established under International Maritime Organization (IMO) regulations. The JSMEA also exchanged views with the partners on relevant IMO regulations. During the international trade fair, the JSMEA distributed many copies of its "Japanese Marine Eco-Products", a booklet created to introduce energy-saving and/or eco-friendly products manufactured by member companies.

The JSMEA also participated in IMPA London 2014, which was held on Sept. 17-18. Making its appearance for the second consecutive year, the organization occupied a similarly small 12-square-meter area as last time, but together with 11 member firms, it worked hard to display and circulate their catalogs. The association organized a mission with staff members from some of the 11 and sent it to inspect other exhibitors at the trade fair and local organizations including the IMO.

JSMEA runs Japan pavilion at SMM Hamburg 2014



Opening Ceremony at Japan pavilion



Mr. Masaaki Matsui, vice-chairman, JSMEA (second from left); Mr. Reinhard Luken, general managing director, VSM (third from left); Mr. Motoyoshi Nakashima, chairman, JSMEA (Center); Mr. Noboru Ueda, chairman and president, ClassNK (third from right); Mr. Matthias Huebner, director, fleet procurement, Oldendorff Carries GmbH & Co. KG (second from right) and Mr. Yoshiro Furukawa, vice-chairman, JSMEA (right)

JSMEA meets with VDR on Sept. 9



(From left) Mr. Shoichi Kitamura, executive managing director, JSMEA; Mr. Motoyoshi Nakashima, chairman, JSMEA; Mr. Martin Kroger, managing director, VDR; Mr. Matthias Plotzke, director, environment protection and climate policy, VDR; Mr. Yoshiro Furukawa, vice-chairman, JSMEA and Mr. Masaaki Matsui, vice-chairman, JSMEA

JSMEA pays visit to VSM on Sept. 9



Mr. Shoichi Kitamura, executive managing director, JSMEA (second from left); Mr. Masaaki Matsui, vice-chairman, JSMEA (third from left); Mr. Gerhard Carlsson, market analyses, VSM (third from right); Mr. Reinhard Luken, general managing director, VSM (second from right) and Mr. Motoyoshi Nakashima, chairman, JSMEA (right)

Venue of IMPA London 2014



JSMEA booth at IMPA London 2014



At both SMM Hamburg 2014 and IMPA London 2014, the JSMEA emphasized the excellence and reliability of the Japanese ship machinery and equipment industry by distributing copies of the booklet "Japanese Marine Eco-Products" and providing information on members' technologies and products to many local parties. For their part, the member companies attending the events also did their utmost to introduce their respective technologies and ship machinery and equipment at their respective booths.

Outline of the JSMEA's participation in SMM Hamburg 2014

Number of member companies that had booth—18: Uzushio Electric Co., Ltd.; the Ecomarine Technology Research Association; Kawasaki Heavy Industries, Ltd.; Sasakura Engineering Co., Ltd.; Sunflame Co., Ltd.; Daihatsu Diesel Mfg. Co., Ltd.; Tanabe Pneumatic Machinery Co., Ltd.; Naniwa Pump Mfg. Co., Ltd.; Nabtesco Corporation; Nishishiba Electric Co., Ltd.; Hisaka Works, Ltd.; Hitachi Zosen Corporation; Fuji Trading Co., Ltd.; Miura Co., Ltd.; Mitsubishi Kakoki Kaisha, Ltd.; Musashino Co., Ltd.; Yanmar Co., Ltd. and Riken Corporation

Number of member companies that displayed informational panels—2: Shinko Ind. Ltd. and Nitto Kasei Co., Ltd.

Outline of the JSMEA's participation in IMPA London 2014

Attending member companies: Kawasaki Heavy Industries; Kyokuyo Electric Co., Ltd.; Taiko Kikai Industries Co., Ltd.; Tamaya Technics Inc.; Chugoku Marine Paints, Ltd.; Teikoku Machinery Works, Ltd.; Terasaki Electric Co., Ltd.; Volcano Co., Ltd.; Mitsubishi Heavy Industries Marine Machinery and Engine Co., Ltd. and Yamato Metal Co., Ltd.

YANMAR

Marine gas engine EYG26L

Supported by
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NAKASHIMA
We Go Beyond

Nakashima Propeller first worldwide to install CFRP propeller on main propulsion system of commercial vessel

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Overview

Yanmar has developed the new marine gas engine. This engine can reduce 90% of NOx, 27% of CO2, 99% of SOx and 99% of PM from the IMO/tier 2 base diesel engine.

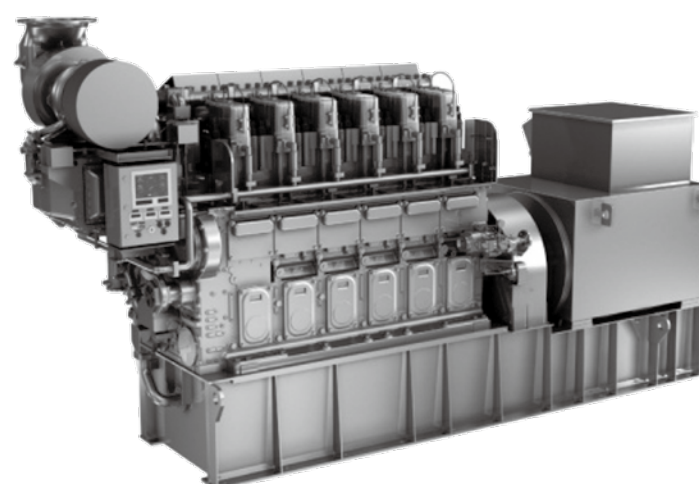
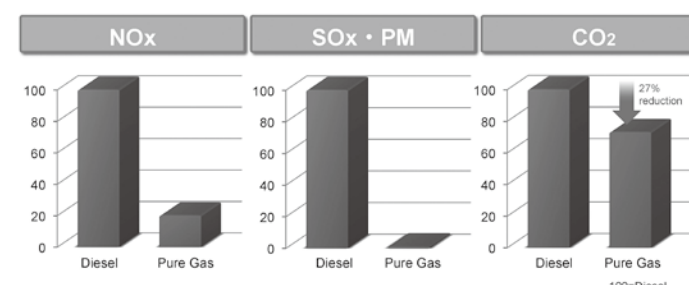
This engine can adapt the requirement of environmental impact materials reduction level of IMO/tier 3 without after treatment.

High reliability, high efficiency

The engine is applied to the prime mover of the marine electrical power generation. This engine applied the new development technology to maintain the air-fuel ratio within certain ranges to the changes of fuel calories and of load variation. As the result, the engine has succeeded to providing the high reliability as a marine prime mover.

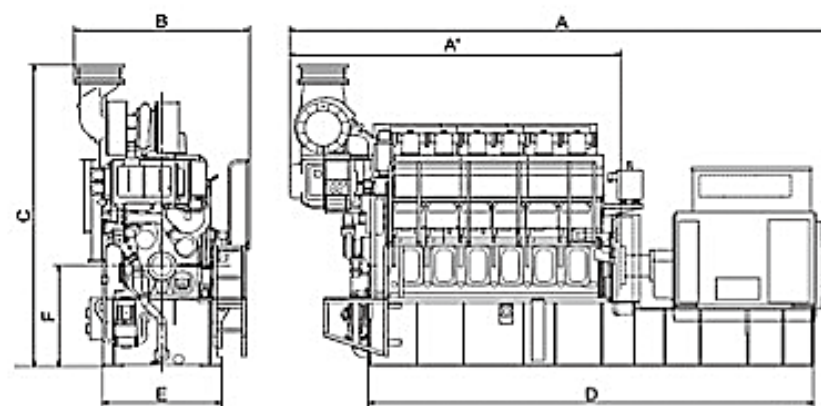
This engine also has installed the combustion control system which optimize each cylinder combustions and detect and avoid knocking by monitoring each cylinder pressures. As the results, this engine has achieved 45% of thermal efficiency with 1.8MPa mean effective pressure.

This developments have been done by support from the Nippon foundation.



Model	EYG26L
Type	Vertical, water cooled four stroke
No. of cylinders	6, 8
Total stroke volume	122.6/163.5L
Rated output (at Flywheel end)	1350/1800kW
Rated speed	720min-1
Fuel	LNG
Combustion system	Manifold injection pre-chamber, spark ignition
Dry weight (Gen.Sets)	19,000kg[31,100]

Model		6EYG26	8EYG26
dimension (mm)	A[Length]	6774	8258
	A'	3974	5290
	B	2102	2286
	C	3722	3867
	D	5270	6720
	E	1420	1420
	F	1250	1250



YANMAR

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Nakashima Propeller Co., Ltd. (president: Motoyoshi Nakashima) of Okayama prefecture has become the first in the world to install a carbon fiber reinforced plastic (CFRP) propeller on the main propulsion system of a general commercial vessel. The main propeller of Taiko Maru was replaced with the new technology, which measures 2.12 meters in diameters, in May 2014 at the Kagawa prefecture-based shipyard Koa Industry Co., Ltd. (president: Tetsuo Masago).

The 499-gross-ton chemical tanker, owned by Sowa Kaiun Y.K. (president: Hiroo Ouchi), a shipping company that is also based in Okayama, was outfitted with a side thruster with a CFRP propeller in September 2012. The side thruster propeller had been rated highly enough to lead to the decision for the May replacement work of the main propeller. The design and manufacturing methods were both approved by Nippon Kaiji Kyokai (ClassNK).

Taiko Maru's main propulsion CFRP propeller was produced using a new design of an enlarged diameter and a reduction in overall blade surface area. The propeller blades can flex, just like the wings of Boeing 787 Dreamliner airplanes. Making the most of this feature, the propeller can provide the chemical tanker with higher efficiency. Nakashima Propeller had conducted tests in a towing tank to verify the performance of the new product. The CFRP propeller weighs approximately 60 percent less than conventional metal propellers,

while enjoying a larger diameter. The lighter body can be operated with a narrower propeller shaft, which can contribute to reducing the overall weight of the entire shafting system and curtailing operational costs.

Taiko Maru was operated in a sea trial on May 18, 2014. The results confirmed that the main CFRP propeller offers about a 9 percent reduction in required shaft power compared to the same ship equipped with conventional metal propellers and running at the same cruising speed. The lighter weight is also effective in reducing hull vibration. Nakashima Propeller will measure engine output, fuel consumption and other data to prove the higher performance of the new propeller.



Research and development of CFRP propellers was supported by The Nippon Foundation and the Japan Ship Machinery and Equipment Association (JSMEA) from fiscal 2007 to fiscal 2011. Since fiscal 2012, research support has been given

under ClassNK's "Joint R&D with Industry" scheme. Nakashima Propeller is now working on the project jointly with the University of Tokyo's school of engineering, ClassNK, National Maritime Research Institute (NMRI), Nippon Yusen Kaisha (NYK), Monohakobi Technology Institute Co., Ltd. (MTI) and Imabari Shipbuilding Co., Ltd.

NAKASHIMA
We Go Beyond

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SSAP Project makes presentation, does PR at IMO's NCSR1

To operate ships safely and efficiently, it is important to integrate and make effective use of various data on hulls, engines, navigation, meteorological & hydrographic conditions and others. Today, however, data barriers among different manufacturers, systems and types of equipment keep operators from integrating information.

For this reason, the Japan Ship Machinery and Equipment Association (JSMEA) set up a dedicated organization in fiscal 2012 (April 2012-March 2013) to discuss the consolidation of various information. Based upon the achievements made by the Shipboard LAN Project, another in-house unit, the Smart Ship Application Platform (SSAP) Project is designed to develop information infrastructure on board vessels and between ships and overland facilities to allow for the integration of information among different types of equipment and build a prototype system. The project is also responsible for testing to verify the prototype on board ships and at overland facilities toward the usefulness of information integration. In addition, The SSAP Project intends to have international standards established for the system to enhance the global competitiveness of the Japanese maritime industry.

The SSAP Project, which is made up of 26 enterprises and nine observers, is working on research projects jointly with Nippon Kaiji Kyokai (ClassNK). It also receives support from ClassNK's "Joint R&D with Industry" scheme.

Currently, the tests are being conducted with help from MOL Ferry Co., Ltd. and Asahi Tanker Co., Ltd.—on board the former's ferry, Sunflower Shiretoko, and the latter's tanker newbuilding, Shin Kyokutou Maru. The SSAP Project has registered



its testbed with the e-Navigation Portal (URL: <http://www.e-navigation.net/index.php?page=ssap-smart-ship-application-platform>) to keep pace with the portal, which is a related project led jointly by the International Maritime Organization (IMO) and the International Air Transport Association (IATA).

To unveil the achievements made so far by the SSAP Project and accelerate the establishment of the international standards, Mr. Hideyuki Ando, leader of the SSAP Project and general manager of Monohakobi Technology Institute Co., Ltd. (MTI)'s Information Group, gave a presentation and conducted public relations activities during the first meeting of the IMO's Sub-Committee on Navigation, Communications and Search and Rescue (NCSR1), which was convened at the organization's headquarters in London on June 30, 2014.

In the future, the SSAP Project will use results of the tests to come up with requirements needed to consolidate onboard information, discuss ways to make effective use of integrated information and promote the establishment of the international standards.

JSMEA compiles booklet for energy-saving, eco-friendly products, runs Web site to introduce members

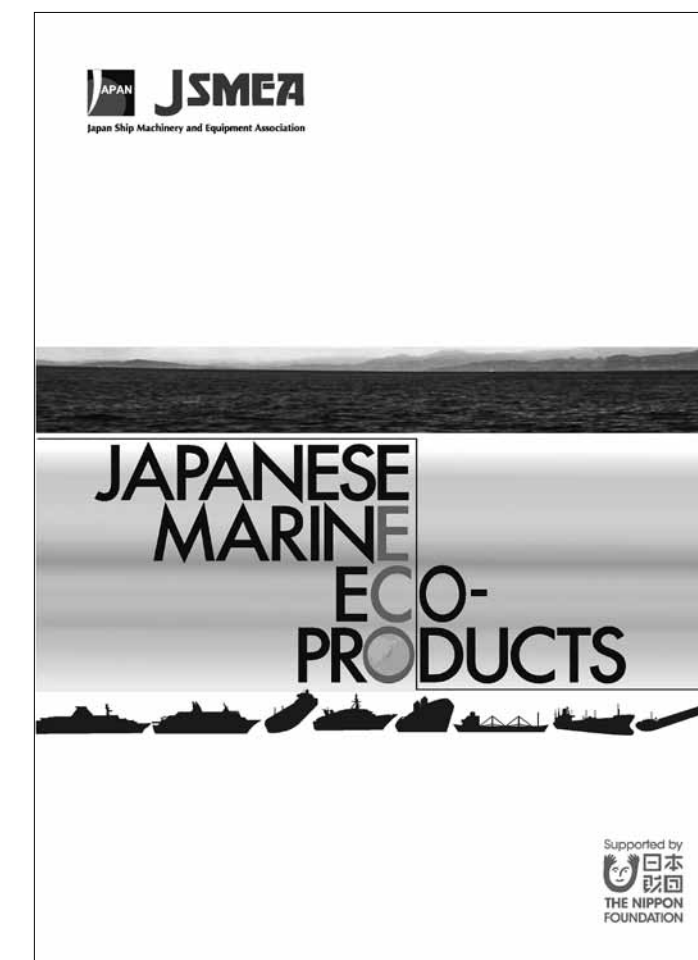
Energy-saving and eco-friendly machinery and equipment for ships are attracting more and more attention these days due to high fuel prices and stricter global environmental regulations, among other reasons. Member companies of the Japan Ship Machinery and Equipment Association (JSMEA) actively develop and sell ship machinery and equipment that contribute to reducing energy consumption and conserving the natural environment. The association has compiled a booklet to introduce their products.

The JSMEA has been busy with public relations activities to promote the publication, which is entitled "Japanese Marine Eco-Products". Copies were distributed among visitors at Posidonia 2014 and SMM 2014, which were held in Greece in June and Germany in September, respectively. They were also circulated at the association's seminar held in Russia in September.

If you are interested in receiving a copy of "Japanese Marine Eco-Products", please contact the JSMEA at info@jsmea.or.jp.



Copies distributed at JSMEA booth



Front cover of "Japanese Marine Eco-Products"

index.html. The association is confident that the Web site will help you easily locate the optimum manufacturer that you seek by simply entering a corporate name, a product name or any other keyword.



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