Company Profile
Launching the reliability of Mitsubishi Heavy Industries into the Seven Seas as a comprehensive technology provider of marine machinery and engines.

To Our Valued Customers

Ever since our company was established in October 2013, I have been blessed with many opportunities to speak with our customers—both here in Japan and abroad—and have received warm words of support towards the new company. To meet the expectations of our customers and enable them to see the results of our activities as a new company, each and every employee will make swift decisions and act promptly under a straightforward organizational structure. We will also speedily develop the company’s three basic strategies: the promotion of Project MEET, globalization and the reinforcement of our services.

In 2014, we are scheduled to announce completion of the development of an Organic Rankine Cycle (ORC) system that utilizes a low-temperature heat medium. We will commercialize it expeditiously, listen to the evaluations and wishes of our customers, and establish and accelerate a cycle that will lead to the next development.

Furthermore, we will enhance our overseas bases as a measure to strengthen the promotion of globalization and the reinforcement of our services. Our plan for further improving our services is to newly assign expatriate employees who are experts in the field of marine machinery to Europe and Singapore starting in April 2014.

Changes in market circumstances and the competitive environment are becoming even more intense in the world of business. All employees will work as one to make MHI-MME a partner who is trusted and needed by its customers.

Kazuo Soma
President & CEO
MHI offers a rich product lineup made possible through proprietary design, cutting-edge technology and the fusion of the trust and track record nurtured over more than 130 years. The marine products offered by MHI-MME are characterized by the reliability, high performance and superior maintainability that only MHI and its long-history can provide. They range from marine diesel engines that bring together MHI's advanced technology, turbochargers, boilers, turbines and propellers, to deck cranes and even winches. These products are manufactured at the Nagasaki Shipyard, the cradle of shipbuilding in Japan, and other production bases, and are being actively used in the seas of the world.

MHI is not only a leading heavy industries manufacturer in Japan but also a leading company in the global arena. It manufactures over 700 kinds of world-class products in a broad range of fields—from launch vehicles and aircraft to power generation, ships, industrial machinery and even household electrical goods. We at MHI-MME will achieve even higher quality, valuable products and services to our customers through close mutual collaboration with MHI in product development, manufacturing, sales and marketing, procurement and services.
For the future of the earth and humanity, Environmental responsiveness and the enhancement of economic efficiency are being realized through the comprehensive strengths distinctive to MHI.

MHI-MME is moving forward to offer original solutions that combine innovative energy-saving technology with green technology through “Project MEET.” By functional combination of various marine products and technologies—such as marine engines, turbochargers, boilers, turbines, exhaust heat recovery systems and propellers—we propose the optimum system for the customer’s intended use and objective, including meeting ever-stricter environmental restrictions and reducing fuel costs. Furthermore, we not only provide guarantees for the overall system but also offer one-stop services, from the supply of products to after-sales services. The comprehensive strengths distinctive to MHI also ensure customers a peace of mind.

**Project MEET**

- **MEET-1** Power generation using thermal discharge below 100°C
  - ORC Organic Rankine Cycle
  - In the past, engine cooling water below 100°C was dumped into the ocean. ORC turbines are compact power generation systems that enable electrical power recovery and power generation using a heat transfer medium with a boiling point lower than that of water-like those used in air conditioners.

- **MEET-2** Evolved, high-performance MAP propellers
  - Improvement of the tip shape enhanced the efficiency of MAP Mark-W propellers while keeping cavitation performance levels virtually unaffected. These propellers can be tailored to suit slow-steaming needs and are also ideal for retrofitting existing propulsion systems.

- **MEET-3** An evolved gas-fired propulsion plant
  - UST Ultra Steam Turbine
  - The adoption of the reheating and regenerative cycle technology, has resulted in a highly efficient and reliable state-of-the-art marine steam turbine. Combined with our marine reheat boiler, it realizes an environmentally friendly, high-efficiency steam propulsion plant.

**Mitsubishi Marine Energy & Environment Technical Solution-System**

- **MEET-1** Fuel-saving engine with world-class thermal efficiency
  - **UEC ECO-Engine**
    - UEC Eco-engines are Japan’s only diesel engines for large ships developed entirely in-house. These engines were developed in response to the global tightening of emissions controls. They achieve the world’s highest level of thermal efficiency through optimized engine performance, which is enabled by the electronic control of fuel injection, exhaust valve actuation, start-up and cylinder lubrication. These engines are contributing to the reduction of NOx and CO2 emissions.

- **MEET-2** NOx and SOx Reduction
  - **MERS Mitsubishi Energy Recovery System**
    - MERS is a marine waste heat recovery system that carries out highly efficient power generation onboard ships through effective utilization of energy harnessed from the main engine’s exhaust gas. Exhaust gas energy is effectively recovered through the optimal control of the combination of exhaust gas and steam turbines, enabling a 10% reduction in a ship’s fuel costs.

- **MEET-3** LNG as fuel
  - **MAP Mark-W Mitsubishi Advanced Propellers**
    - MALS is MHI’s original system which saves energy and reduces CO2 emissions with bubbles
    - The SCR system enables denitrification even of low-temperature exhaust gas of about 290°C. It can reduce the NOx in exhaust gas to meet the next Tier regulation levels without taking away from the excellent fuel efficiency.
    - EGR Exhaust Gas Recirculation
      - This EGR system uses a high-performance scavenging system to efficiently remove SOx and particulate matter. It is also an exhaust gas recirculation system that can meet the next Tier NOx regulations.

**MEET**

- **MEET-1** Fuel-saving engine with world-class thermal efficiency
  - **VTI Turbocharger**
    - Hybrid Turbocharger
      - A compact hybrid turbocharger with a built-in power generator so that it not only supplies supercharged air to the engine but also uses rotational energy to generate electrical power at the same time. It contributes to the improvement of fuel efficiency by supplying all electrical power necessary while at sea.

- **MEET-2** NOx and SOx Reduction
  - **Electric assist Turbocharger**
    - The electric assist turbocharger is a turbocharger that incorporates a compact electric motor that assists the driving of the turbocharger. This provides optimization of plant efficiency when a ship is operating under slow steaming, enabling the same or better performance than an auxiliary blower while consuming little power.

- **MEET-3** LNG as fuel
  - **UST Ultra Steam Turbine**
    - The adoption of the reheating and regenerative cycle technology, has resulted in a highly efficient and reliable state-of-the-art marine steam turbine. Combined with our marine reheat boiler, it realizes an environmentally friendly, high-efficiency steam propulsion plant.

**Integration of MHI’s marine machinery and engines, products and technologies**
Prompt response to every need of customers around the globe with worldwide manufacturing bases, sales and service network.

With a history of over 100 years, MHI knows just about everything there is to know about oceans and ships. In fact, about half of the world’s ships in service are installed with an MHI marine product. We at MHI-MME are carrying on MHI’s tradition and proven track record and will be providing speedy response to every need of customers around the globe through our worldwide sales and service network. The globalization of our manufacturing bases is also being proactively promoted, with bases being rolled out overseas in countries that include Korea and China. Even under fast-changing business conditions, we will contribute to the future of the maritime and shipbuilding industries while coexisting with our customers around the world.

Global Network
Production at Optimal Locations through Licensees

MHI-MME is promoting the granting of licenses to overseas companies mainly in Korea and China, which are major shipbuilding nations, as well as the establishment of joint ventures with local partners. Through production at optimal locations through the licensees of various MHI brand products, we will provide a lineup of our latest products and wide variety of solutions closely oriented to our customer’s markets worldwide.

Reinforcement of Global After-Sales Services through Collaboration with Authorized Repair Agents

We aim for a structure that allows customers not only in Japan but also throughout the world to use our products with peace of mind. In order to enable the sound operation of ships, we at MHI-MME are focusing not only on globalizing our production and sales network but also on efforts to reinforce our after-sales service network.

In Japan, we have bases in Nagasaki, Tokyo, Osaka, Kobe and Imabari, where service quality will be further enhanced. Meanwhile, we have employees with full knowledge of marine products stationed overseas in Hamburg, Busan, Shanghai and Singapore. They serve as contact points for our customers as well as coordinate after-sales service operations and provide technical support to our authorized repair agents (ARA). Going forward, we will strengthen and expand our collaboration with the ARAs even more so as to further establish our after-sales service network on a global basis.
Yataro Iwasaki, the founder of Mitsubishi, leased the Nagasaki Shipyard owned by the Japanese Ministry of Industry. Naming it the Nagasaki Shipyard & Machinery Works, started full-scale shipbuilding work. Completed production of its first marine boiler. Since then, it sequentially expanded manufacturing to include engines, turbines, turbocounters, propellers, fin stabilizers, steering gears, deck cranes and deck machinery.

Established MHI Diesel Service Engineering Co., Ltd. as a wholly owned subsidiary of MHI with a capital of 25 million yen to handle the design of MHI marine engines, etc., as well as carry out after-sales services. The Marine Machinery & Engine Division established within the Power Systems Headquarters in order to achieve the consolidated operation of MHI’s marine machinery and engine businesses. Succeeded the development, design, marketing, after-sales service and licensing of MHI’s marine machinery and engines. Capital increased to 1 billion yen and the trade name changed to Mitsubishi Heavy Industries Marine Machinery & Engine Co., Ltd.

Upholding the tradition of the MHI brand on our hearts.

MHI-MME will continually set sail on new challenging “voyages”.

### Corporate Outline

**Trade Name:** Mitsubishi Heavy Industries Marine Machinery & Engine Co., Ltd.

**Head Office:** 1-1 Akunoura-Machi, Nagasaki, 850-8610 JAPAN

**President:** Kazuo Soma

**Capital:** 1 billion Japanese yen

**No. of Employees:** 272

**Business Content:** Development, design, marketing, after-sales service and licensing of marine machinery and engines

### Corporate History

**July 1884**

Yataro Iwasaki, the founder of Mitsubishi, leased the Nagasaki Shipyard owned by the Japanese Ministry of Industry. Naming it the Nagasaki Shipyard & Machinery Works, started full-scale shipbuilding work.

**1885**

Completed production of its first marine boiler. Since then, it sequentially expanded manufacturing to include engines, turbines, turbocounters, propellers, fin stabilizers, steering gears, deck cranes and deck machinery.

**October 1977**

Established MHI Diesel Service Engineering Co., Ltd. as a wholly owned subsidiary of MHI with a capital of 25 million yen to handle the design of MHI marine engines, etc., as well as carry out after-sales services.

**April 2011**

The Marine Machinery & Engine Division established within the Power Systems Headquarters in order to achieve the consolidated operation of MHI’s marine machinery and engine businesses.

**October 2013**

Succeeded the development, design, marketing, after-sales service and licensing of MHI’s marine machinery and engines. Capital increased to 1 billion yen and the trade name changed to Mitsubishi Heavy Industries Marine Machinery & Engine Co., Ltd.

### Offices in Japan

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**Overseas Offices**

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