
Taking on the Challenge of Expanding the “MONOZUKURI” of Large Marine Structures by Utilizing Commercial Marine Vessel Manufacturing Facilities Mitsubishi Heavy Industries Marine Structure Co., Ltd.



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In January 2018, Mitsubishi Heavy Industries Hull Production Co., Ltd. made a renewed start as Mitsubishi Heavy Industries Marine Structure Co., Ltd. (MHIMST, hereafter referred to as MST), mainly succeeding the business sectors of commercial marine vessels and steel structure construction in the Nagasaki area of Mitsubishi Heavy Industries Shipbuilding Co., Ltd. and Mitsubishi Heavy Industries, Ltd. (MHI). Having no design department, MST specializes in “MONOZUKURI” or manufacturing by taking over the facilities of the Nagasaki Shipyard’s Koyagi Plant, which has been MHI’s key manufacturing base for large commercial marine vessels. By taking advantage of the plant facilities and further expanding our shipbuilding expertise accumulated through building commercial marine vessels to enter the market for large marine structures, we will contribute to our customer’s success in business while broadening our “MONOZUKURI” business at the same time.

1. Corporate philosophy

MST has the following corporate philosophy.

1.1 MONOZUKURI from the customers’ point of view

Always willing to listen to our customers to realize reliable “MONOZUKURI.”

1.2 MONOZUKURI with safety and quality as the first priorities

Always pay attention to safety and quality and stay loyal to the basics to realize consistent “MONOZUKURI.”

1.3 MONOZUKURI as an opportunity for self-improvement

Always seek to improve the skills and knowledge to realize “MONOZUKURI” that is a cut above the rest.

2. Plant facility overview

With a site area of approximately 1.2 million m², MST stretches over an area roughly 26 times as large as the Tokyo Dome. Our plant facilities are summarized below.

2.1 Steel plate surface treatment and cutting facilities

The steel plate surface treatment facility is equipped with printing machines that can transfer 3D design data to the steel plate surface to show the location where fittings or piping should be installed. Furthermore, laser cutters and plasma cutters are available at the cutting facility. Therefore, the cutting of parts can be carried out with precision.

2.2 Block assembly facility

The small assembly facility can produce blocks up to 40 tons, while the large assembly facility can accommodate blocks up to 600 tons. Once assembled, these blocks are taken out from the buildings and are conveyed by a trailer with a maximum carrying capacity of 600 tons.

2.3 Block pre-outfitting and coating facilities

The blocks are then brought into a special shed, where piping and fittings are installed by checking the printed information and 3D data from the design. Additional coating facilities have been installed, providing an allowance for production ramp-up.

2.4 Building dock

The dock measures 990 m long and 100 m wide, and is equipped with three Goliath cranes (1

unit with 1,200-ton capacity and 2 with 600-ton capacity), allowing the blocks to be lifted up and placed in the building dock. To minimize the workload at the building dock, blocks are joined together to increase the size within the total maximum lifting capacity of the Goliath cranes before being brought to the building dock (ground assembly, **Figure 1**).

A new partition gate was installed inside of the dock, allowing large barges to move into the dock and enabling large blocks to be delivered from the outside or be taken out from the dock at any time without using floating cranes.



Figure 1 Loading with Goliath cranes
(A block weighing approximately 1,500 tons (60 m × 45 m) for an oil tanker)

2.5 Quay berths

There are three quay berths, each capable of accommodating a large marine vessel such as a VLCC or an LNG carrier. After being launched, ships undergo final adjustment and touch-ups.

3. Future development

As our portfolio was primarily focused on the construction of large commercial marine vessels, we had fewer opportunities to build large marine structures such as floating oil storage facilities (**Figure 2**).

Henceforth, we will take full advantage of the capability made possible by MST's large facilities and expertise in building commercial marine vessels to satisfy the needs of our customers through a wider range of offerings including large marine structures such as hybrid caissons (**Figure 3**), jackets for piers and bridges, fundamental structures for tidal power generation and off-shore wind power generation, LNG power generation barges with less environmental impact, and the retrofitting of ships with scrubbers compliant with regulations on SOx emissions.



Figure 2 Large floating marine structure (oil storage facility)

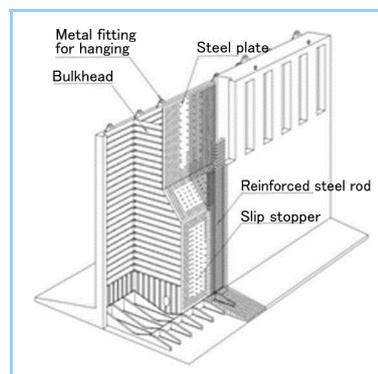


Figure 3 Hybrid caisson