

● About the Exhibits

▼ Patrol Boat "Arakaze", JCG Arakaze

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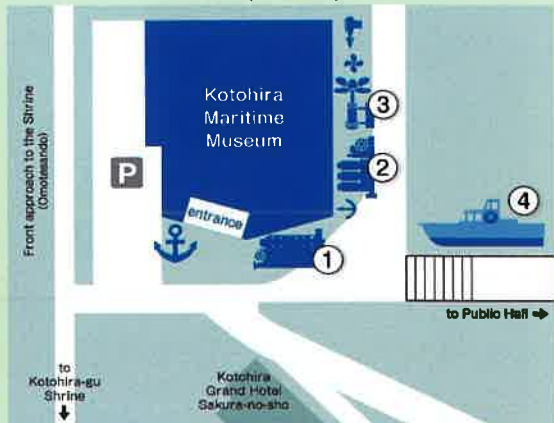
The Arakaze was built as an all-aluminum alloy ship, which was rare in the world at that time. The ship served for more than four and a half centuries and is a memorable ship that completed its mission without any accidents.

Since its completion in March 1954, it was active in the Kitakyushu area for 20 years as a patrol boat of the Japan Coast Guard. After that, the ship was used as a training boat for the Maritime Disaster Prevention Center. The ship finished the last duty 27 years after it went into service in January 1981.

Due to the long and severe use, the hull is partially deformed. These were caused when attaching the side of vessel to another vessel or quay. However, there is no damage or corrosion, and the strength test of the samples cut out from the hull has confirmed that there is no deterioration of materials.

※You cannot enter the ship.

※There are exhibits outside of this building. Please have a look on your way out.



▼ 4 cycle single acting Diesel engine

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▼ Variable-pitch propeller

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▼ Hot-bulb engine

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This diesel engine was built in 1963 and used as the main engine for the first steel car ferry (300 g/t) to run between Uno and Takamatsu. It powered this ferry for roughly 20 years. It sailed a total distance of 810 thousand nautical miles (1.5 million kilometers), which equates to circumnavigating the globe 38 times.

It used compressed air to start up, and during operation it used an exhaust pressure powered exhaust gas turbine supercharger to boost air pressure.

The engine rotation directly powered the propeller shaft, consuming 139 liters of A-type heavy oil per hour of operation. A self-reversing engine, it moved the cam when reversing, adjusting the valve timing and reversing the direction of shaft rotation itself. The red represents the movement of fuel, the yellow lubricating oil, the white air, and the blue cooling water. Seawater was used for cooling water.



This variable-pitch propeller (or controllable pitch propeller) was installed in the MV Tamatakamaru 71; built by Shikoku Ferry Co., Ltd., the ship traveled between Tamatakamaru and Uno. The propeller was manufactured and delivered by Nakashima Propeller Co., Ltd. (Nakashima Stone Pickers Co., Ltd.).

A variable-pitch propeller allows for the blade angle to easily be set to any position (forward propulsion, backward propulsion) using the wheelhouse control lever. Therefore, the engine rotation speed and direction can be kept constant as the ship is manipulated swiftly in forward propulsion or backward propulsion at slow speed, giving excellent handling and stability. This variable-pitch propeller is also a highly skewed propeller to minimize hull vibration.



This hot-bulb engine was built in March 1961 by Makita Ironworks (now Makita Corporation). The three-cylinder, 100-horsepower engine was installed in a freight ship used for shipping crushed stone.

The hot-bulb engine is a type of reciprocating engine developed around 1890 in Britain, which heats an iron bulb in order to vaporize fuel to generate kinetic energy to power the engine. The engine's simple design and lack of need for precision meant it was easy to build, and many small and medium-sized manufacturers produced them.

The engine was also well-suited to use in small ships, and while it did take some time to start up and required a certain degree of familiarity to operate, it did not require the same level of skill for operation and maintenance as a diesel engine, and was therefore widely used throughout Japan prior to World War II. However, due to its high fuel consumption and the inability to increase output, over time, it was completely replaced by diesel alternatives. This is one of few surviving examples of a hot-bulb engine of this size.