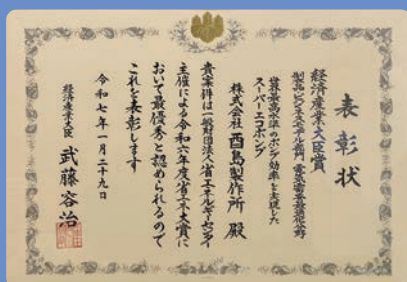


Super Eco Pump Won the Top Prize in the Energy Conservation Grand Prize

03



07 Visiting End Users 211

Aiming for a Sustainable, Decarbonized Society with Environmentally Friendly Electric Furnace Steel

Kyushu Works,
Tokyo Steel Mfg. Co., Ltd.

Project Highlights

09

13 TORISHIMA NEWS

Awarded as an
Excellent Safe Contractor
by Japan Sewage Works Agency



Recruitment Website Renewal

We've refreshed our senior employees' voices and added insights from new team members and messages from our HR department. Take a look at the dedication and passion Torishima employees bring to their work with pumps.

www.torishima.co.jp/saiyo/

チームワークを 試練を吹き飛ばす。

CEO 原田 耕太郎

Overcoming Challenges
Through Teamwork

Kotaro Harada
Representative Director, CEO

CEO MESSAGE

Did you see last year's year-end NHK (Japan's public broadcaster) special featuring Shohei Ohtani? Over the past four years, Torishima has continued to grow by learning from Ohtani's ever-evolving mindset and actions and adopting them as our keywords.

We learned from his attitude he had maintained since his boyhood, which was broadcast

at the end of 2021, such as the three promises he made with his father, to value the basics: speaking out loudly and cheerfully, playing catch with full effort, and running with all his might. And in 2022, we made it a year to reflect on what it means to speak out, to play catch, and to run.

In 2023, we were inspired by his words: "I feel incredibly happy knowing that I can still improve and that there is always more to achieve." With this in mind, we chose our keyword as: "We strive to improve our pump manufacturing and are happy that there is always more to achieve."

In 2024, we learned from the special program's theme, "Data and Change," and have always taken action with data, agility, and change in mind, with the keywords: data-driven change, changing training and speed, and enjoying change.





The keyword for 2025 that we have learned from the special program aired as “Trials, Decisions, and to the Top” is “Teamwork.” It was the pinnacle he achieved after overcoming countless trials and tribulations. Last year was a year that started with him giving up pitching. And then he was transferred to the Dodgers, his interpreter betrayed him and was arrested, the key players such as Betts and Freeman were successively forced to leave the games due to injuries, and finally Ohtani himself was injured. It was truly a series of trials and tribulations. The attitude he valued in this situation was communication to share his thoughts. You have probably seen a significant change from his attitude up until the year before last, as he now constantly communicates with his teammates. How many people were encouraged and empowered

by his dedication to team batting, as well as his efforts to inspire and lead the team with more stolen bases and home runs?

Trials, trials, and more trials. This is powerful teamwork, as the team has overcome every trial it faced. **In 2025, Torishima will continue to value communication to share our thoughts and work earnestly through teamwork to manufacture our pumps.**

Finally, I would like to share with you all the following words from the theme, “Dodgers’ Way to Play Baseball.”

Teamwork makes the dream work.

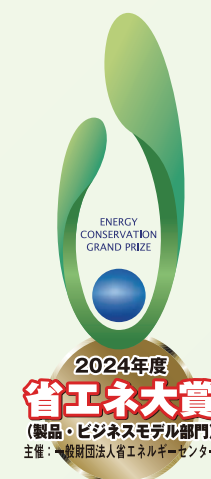
Teamwork is how we win.

Each guy has to pick up each player.

(At the opening ceremony on January 6, 2025)

Super Eco Pump Won the Top Prize in the Energy Conservation Grand Prize

Torishima's Super Eco Pump was highly recognized in the Product & Business Model Category of the FY2024 Energy Conservation Grand Prize, organized by the Energy Conservation Center, and received the highest honor, the Minister of Economy, Trade and Industry Award, in the Electricity Demand Optimization field. Torishima previously received the Minister of Economy, Trade and Industry Award for our Go Green with Pumps initiatives in the Business Model field in FY2014. This time, the award was given in recognition of our standard pump, Super Eco Pump, which has achieved the world's highest level of efficiency across all models.



Minister of Economy,
Trade and Industry Award
(Top Prize)
Electricity Demand Optimization Field



Product Overview

Super Eco Pump is series of highly efficient pumps that achieve $MEI \geq 0.7^*$, the highest grade in European pump efficiency standards, across all models and has been on sale since October 2023. In addition to data from conventional standard pumps (Eco-Pumps), this pump utilizes the extensive hydraulic data that Torishima has accumulated through years of developing high-pressure pumps and large pumps, where extreme efficiency is required. By training AI with this data, we have generated new design data, allowing for the development of higher-performance products and achieving significantly improved pump efficiency compared to previous models.

Using Super Eco Pump, which can reduce power consumption by improving pump efficiency, allows customers to save on electricity costs, reduce CO₂ emissions, and downsize motor capacity, thereby helping to solve energy efficiency challenges at their factories and other locations.

* MEI refers to Minimum Efficiency Index in the European standards. The index is represented by a value between 0.10 and 0.70, where a higher value signifies higher efficiency. In Europe, pumps are only allowed to be sold if they achieve $MEI \geq 0.40$.

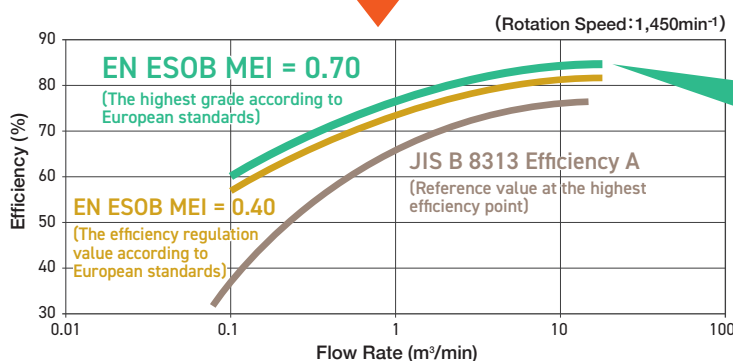
Torishima's Super Eco Pump Efficiency Achieves $MEI \geq 0.70$, the Highest Grade in Europe, across All Models

Japan-Europe Pump Efficiency Index (international comparison)

Region	Pump	Motor*1		
Japan	JIS B 8313 Efficiency A (since 1958)	IE3 (Top Runner regulations) (since 2015)		
Europe (ErP Directive)	MEI (≥ 0.40) (since 2015)	IE2 (since 2011)	IE3 (since 2015)	IE4*2 (since 2023)

*1 This information is for reference only.
For details, please refer to JEMA (Japan Electrical Manufacturers' Association) documents and other sources.

*2 The IE4 motor has a rated output of 75 to 200 kW.



The efficiency of Super Eco Pump has been developed with the goal of achieving $MEI \geq 0.70$, the highest grade in European pump efficiency standards, which is a leader in energy conservation.

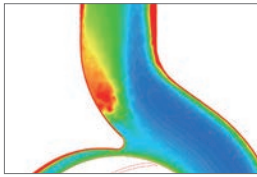


The Quality of Super Eco Pump

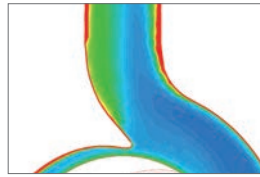
New Design with AI

Improving Fluidity in the Casing

The internal geometry has been optimized to improve water flowability.



Before



After

Water Flow
Turbulence

Large

Small

Optimizing Impeller Geometry



2D impeller

(Conventional standard impeller)



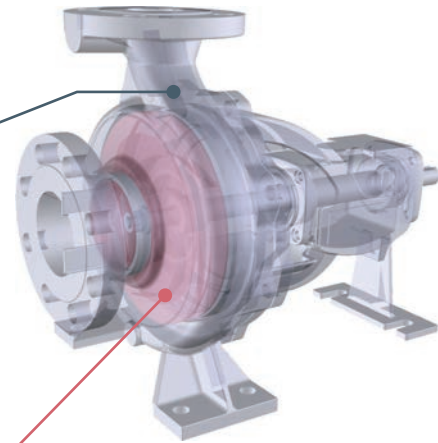
3D impeller

(Highly efficient 3-dimensional impeller)



3DM impeller*

* 3DM impellers are designed with enhanced manufacturing precision. Many Super Eco Pump models use this 3DM impeller.



Reduction of Losses by Improving Surface Roughness



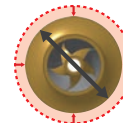
Conventional Pump



Super Eco Pump

We have reduced friction loss by revising manufacturing methods such as impeller and casing design.

Impeller Diameter Trim to Eliminate Waste



To reduce excess power consumption of the pump, we select the optimal impeller diameter for the duty point and perform outer diameter machining.

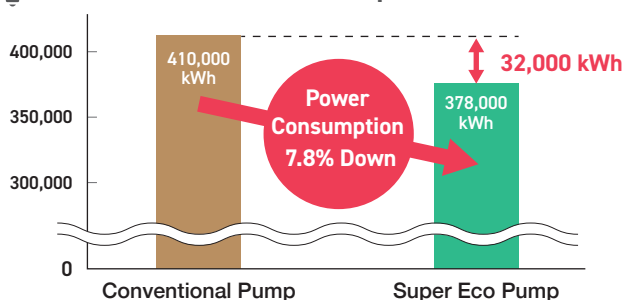
Economic Effect of Energy Savings with Super Eco Pump

An example of comparing Super Eco Pump (CAL125-400E) and a conventional pump of the same diameter (CAL125-400) is shown below.

<Pump Specification> Flow Rate: 4.5 m³/min, Total Head: 45 m

	Conventional Pump (CAL125-400)	Super Eco Pump (CAL125-400E)	Difference
Pump Efficiency	74 %	81 %	7.0 %
Shaft Power	44.7 kW	40.8 kW	-3.9 kW
Power Consumption	46.8 kW	43.2 kW	-3.6 kW

Annual Power Consumption [kWh]



Savings of approximately
13 million yen over 15 years

Annual Electricity Bill	
Conventional Pump	11,107,000 yen
Super Eco Pump	10,240,000 yen
Annual electricity bill savings 867,000 yen	

Annual CO ₂ Emissions	
Conventional Pump	175.9 t/CO ₂
Super Eco Pump	162.2 t/CO ₂
Annual CO ₂ emission reduction 13.7 t/CO₂	

Motor Capacity	
Conventional Pump	55 kW
Super Eco Pump	45 kW
Improve pump efficiency and downsize motor capacity by one grade	
<ul style="list-style-type: none"> • Reduce initial costs • Downsize electrical equipment 	

* Operating hours: 8,760 hours/year
* Electricity unit price: 27.09 yen
* CO₂ emission factor: 0.000429 t-CO₂/kWh

Voices from Our Staff

As a company indispensable to society, Torishima can contribute to improving energy efficiency and achieving carbon neutrality by manufacturing pumps. As part of this, we offer Super Eco Pump. In Europe, efficiency regulations have been introduced since 2015, whereby general-purpose pumps are only allowed to be sold if they meet a MEI (minimum efficiency index) of between 0.40 and 0.70. Although pump efficiency regulations have not been introduced in Japan, there were calls in Torishima to develop

Super Eco Pump, the world's highest-level efficiency pump that meets the highest MEI class of 0.70, in order to help build a carbon-neutral society.

Super Eco Pump subsequently won the Energy Conservation Grand Prize. Travelling the path from development to receiving the award was made possible through the efforts and hard work of many people, including the R&D Department that developed the pump, Kyushu Torishima, our subsidiary that commercialized it, and the Private-Sector Management and Facility Solution departments, which handled everything from market research and development planning to project promotion.

Research and Development Dept.

(Affiliations refer to the department or company at the time of development.)

Q. What did you think when you first heard that we were going to develop Super Eco Pump?

Hano: Unlike large high-pressure pumps, which are made-to-order, general-purpose pumps not only have to be developed, designed, verified, and tested, but also standardized. Given the large number of models, I felt that the two-year period from development to standardization was too short. However, the R&D Department had been continuously working on improving efficiency through other development initiatives for some time, so I saw this as an opportunity to make use of those efforts. The goal of this development was also in line with Torishima's aim to be No. 1, and I felt that it was a worthwhile theme for us.

Q. What challenges did you face while developing Super Eco Pump?

Matsuda: While we used the CFD (computational fluid dynamics) method for development and design, we had to meet not only the demand for new pumps but also for replacing existing eco-pumps on the market. This required us to consider the dimensions of existing piping and other non-pump components. This greatly restricted design flexibility, and we also had to ensure the pumps were more efficient, which was challenging for us.

Yonemura: In the end, development took three years, and in order to calculate the MEI, multiple units had to be tested for each model. In cooperation with Kyushu Torishima, we conducted verification tests on a total of nearly 400 pumps. When that development was over, I was relieved, to be honest.



Celebration ceremony for Super Eco Pump winning the Energy Conservation Grand Prize (at the Head Office & Works building)

Q. What were the challenges you faced while manufacturing Super Eco Pumps?

Yoshimura: The SEP Promotion Office was set up at Kyushu Torishima with the aim of developing all 74 models of eco-pumps that meet the MEI of 0.70 in two years. But at first, I felt it was almost impossible to produce dozens of prototype units in such a short time. At the time, we were in the midst of the COVID-19 pandemic and were unable to visit component suppliers. We tried to hold online meetings as much as possible, but it was still very difficult to get cooperation from the suppliers. Some factories that had once agreed to supply components later declined because the required quality standards for Super Eco Pump were too high for them during the prototype production phase.

Fuchikami: At Kyushu Torishima, our main mission was to manufacture pumps with high efficiency and consistent quality. Maintaining constant testing conditions and methods to reduce variability may seem obvious, but it was actually very challenging in practice, so we devised various strategies. If the efficiency did not

meet the required quality, we worked with the R&D Department to determine the cause. In addition, since Kyushu Torishima is responsible for the production of all eco-pumps in Japan, we had to carry out regular manufacturing and a lot of testing simultaneously.

I believe that this development would not have been achieved without the cooperation of all Kyushu Torishima members.



Q. What allowed you to do your best under such circumstances?

Yoshimura: The promotion of energy conservation through Super Eco Pump is one of Torishima's initiatives to address energy challenges on the path to a carbon-neutral society. There is no doubt that the pumps are essential for the development of Kyushu Torishima, and once the decision was made to proceed, I felt a strong determination to ensure its success.

Facility Solutions Dept.

Q. Why did you apply for the Energy Conservation Grand Prize this time?

Fujimoto: Ten years had passed since we won the Energy Conservation Grand Prize for the Go Green with Pumps initiatives with eco-pumps in 2014. In the meantime, we continued those initiatives but I feel there is still room to make people aware that pumps can save energy. As for motors, many people are aware that they are subject to the Top Runner regulations*. To increase efficiency by 1 to 2%, the motor just needs to be updated. On the other hand, pumps can achieve energy savings by being more efficient than motors, but many people are unaware that pumps can also save energy in

the first place, which is very frustrating. I wanted to raise awareness of the importance of pumps through winning the Energy Conservation Grand Prize with our fully developed Super Eco Pump.

* The Top Runner regulations were introduced in 1999, which set target standards for the energy consumption efficiency of applicable equipment. Since 2015, industrial motors have also been added to the scope of the Top Runner Program.

Q. What were some of the challenges you faced in the process of applying for the Energy Conservation Grand Prize?

Hashiguchi: The evaluation process consisted of multiple stages, including on-site inspections. We had to highlight the unique features of Super Eco Pump from various perspectives, including technical aspects, the background of its development, product concept, energy efficiency, innovation, originality, marketability, economic viability, and safety. Even after submitting these, we still had to provide detailed explanations to substantiate our claims. It was challenging to conduct thorough research within the limited time available. On the other hand, thanks to that research, I have gained considerable knowledge about Super Eco Pump, so I can better promote it to our customers.



The ENEX2025 exhibition took place alongside an award ceremony for the Energy Conservation Grand Prize.



This is the second time we have won the Energy Conservation Grand Prize. With a strong commitment to accelerating our sales activities and promoting energy-efficient pumps worldwide to achieve a carbon-neutral society, we will continue to contribute to society as a pump manufacturer striving to be the world's leader in energy conservation.

Aiming for a Sustainable, Decarbonized Society with Environmentally Friendly Electric Furnace Steel

Kyushu Works, Tokyo Steel Mfg. Co., Ltd.



Kyushu Works, Tokyo Steel Mfg. Co., Ltd.

Kitakyushu, where steelmaking traditions live on

The Kyushu Works of Tokyo Steel Mfg. Co., Ltd. (hereinafter referred to as Tokyo Steel), the largest electric furnace steel manufacturer in Japan, is located along Dokai Bay in Kitakyushu City, Fukuoka Prefecture, at the northernmost tip of Kyushu. Kitakyushu, located close to the Chikuho coalfield and ideally situated for land and sea transportation, saw the construction of the government-operated Yahata Steel Works during the Meiji era, leading Japan's steel industry.

The sight of the factory lights floating in the darkness is enchanting, and the night view from Mt. Sarakura is so spectacular that it is called the "\$10 billion night view." The drinking district around Kokura Station bustles with activity, and many people are familiar with the city's harmony of industrial history and local vitality.

Tokyo Steel EcoVision 2050: Challenge to Reduce Environmental Impact

Tokyo Steel manufactures steel by melting steel scrap in an electric furnace. The primary raw material, steel

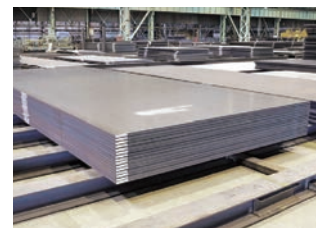
scrap, is generated from processes such as manufacturing machinery, demolishing buildings, and dismantling vehicles. Steel does not suffer much deterioration in quality when recycled, and can be transformed into a variety of products again and again. In today's society, where the depletion of natural resources is an issue, steel scrap is attracting attention as a valuable resource.

Since its establishment, Tokyo Steel has continuously sought to advance its products. The company has entered the field of H-beams, which used to be dominated by blast furnace steelmakers, and has improved quality and increased production size. It has now established itself as a top manufacturer in Japan.

The Kyushu Works manufactures H-beams and heavy plates as its main products. Among these products, heavy plates are uniquely produced only at the Kyushu Works out of Tokyo Steel's four factories in Japan, making it a distinctive feature of this factory. Torishima has supplied approximately 200 large vertical mixed-flow pumps using these heavy plates to Egypt.



H-beams



Heavy plates

Furthermore, Tokyo Steel has set forth a long-term environmental vision, Tokyo Steel EcoVision 2050, aiming to realize the ideal state of a decarbonized and circular society by 2050. Under this vision, the company is promoting the use of environmentally friendly electric furnace steel and working to reduce CO₂ emissions in society as a whole.

A Corporate Culture That Encourages Taking on Challenges

The Equipment Section of the Production Department, to which Mr. Maeda—our interviewee—belongs, is responsible for overall equipment maintenance and capital investment at the factory. Mr. Maeda is mainly in charge of equipment maintenance, and he is also actively involved in capital investment to improve energy efficiency by making use of his abundant experience.

When asked about the features of Tokyo Steel, he replied, “Tokyo Steel has a corporate culture that encourages us to take on challenges regardless of the results. I am entrusted with the responsibility to do what I think is good for the company, from planning to execution, so I can proceed with projects in a speedy manner. Even if I fail, the people around me support me, so I can tackle the next challenge without being discouraged.” I felt that Tokyo Steel’s positive corporate culture encourages employees to be proactive.

A New Path to Greater Energy Efficiency

As Tokyo Steel searched for the next step in energy efficiency at its Kyushu Works to achieve Tokyo Steel EcoVision 2050, the company came across Torishima’s Go Green with Pumps initiatives and began promoting energy efficiency through pumps. In 2018, most of the pumps the company used were made by other manufacturers, but the high efficiency of Torishima pumps was recognized, and as of January 2025, a total of 45 pumps have been installed.

Tokyo Steel has a policy of proactively adopting measures that are expected to be effective, and the speed of decision-making from proposal to introduction is outstanding. We were told, “We want to continue promoting energy efficiency, so we hope you will walk

alongside Tokyo Steel at the same pace.” This message made us feel a strong sense of responsibility.



Mr. Maeda, Assistant Manager, Equipment Section Production Department, who cooperated in the interview

During our tour of the steelmaking and rolling plants, we observed that Torishima pumps are operating everywhere for cooling water, water supply, and



High Pressure Feed Water Pumps for the Rolling System

Pump Application	High Pressure Feed Water Pumps for the Rolling System
Orders Recieved	in 2024
Type & Size	CDM250×150CN
Quantity	1 unit
Capacity	500 m³/hr
Total Head	114 m
Motor Output	220 kW

boosting purposes. This reaffirmed the indispensable role that pumps play in production lines. Particularly impressive were the high pressure feed water pumps for the rolling system. This pump is responsible for supplying high-pressure water to prevent seizing in the rolling mills. This year, the pump was updated based on Torishima’s energy efficiency proposal. Previously, two pumps made by another manufacturer were operated with valves turned down, but we reviewed the specifications and proposed replacing them with a single double-suction volute pump. This improved the operating efficiency, and Tokyo Steel has evaluated the energy saving effect as significant.

We are pleased that Torishima’s pumps are being used one after another at the Kyushu Works and that we are contributing to the achievement of Tokyo Steel EcoVision 2050. We will continue to support Tokyo Steel’s energy efficiency efforts and contribute to the creation of a sustainable society.

Finally, we would like to take this opportunity to thank Mr. Maeda of Tokyo Steel and all those involved for their kind cooperation in this interview despite their busy schedules.

Project Highlights

01

Enhancing Equipment Reliability and Functionality through Increased Drainage Capacity and Backup Systems

Received an order from the Osaka Prefecture Northern Basin Sewerage Office to Renovate Takatsuki Sewage Treatment Center No. 8 Rainwater Pump Equipment, Yodo River Right Bank Basin Sewerage

We have received an order from the Osaka Prefecture Northern Basin Sewerage Office to renovate the No. 8, 9, and 10 rainwater pump equipment, following the renovation of the No. 7 rainwater pump equipment at the Takatsuki Sewage Treatment Center.

Basin sewerage is a type of sewerage project in which sewage from two or more municipalities is collected and treated at a single facility and is managed by the prefecture. The Osaka Prefecture has three basin sewerage offices located in the northern, eastern, and southern regions, with the Takatsuki Sewage Treatment Center managed by the Northern Basin Sewerage Office.

The center is located approximately 1 km west of Hirakata Ohashi Bridge and covers a vast site of 320,000 m² (roughly eight times the size of Koshien Baseball Stadium). The rooftop of its treatment plant is home to the lush Takatsuki Skyland, and there are lawn plaza, sports field, walking trails, tennis courts, and other facilities, making it a place of recreation and relaxation for Osaka citizens.

Thirteen rainwater pumps are installed at the center for forced drainage of rainwater, with a maximum capacity of approximately 5,200 tons per minute. The No. 8, 9, and 10 rainwater pumps have been in operation for over 30 years since they were first put into service and have deteriorated over time, and some engine components are no longer in production. To ensure that functionality can be quickly restored in the event of a malfunction, this project will upgrade the engines and reducers.

Additionally, in Osaka Prefecture's basin sewerage projects, efforts are being made to enhance the reliability of facility operation by installing backup equipment in preparation for the increasing frequency of heavy rains and rising precipitation in recent years. By increasing the drainage capacity of rainwater pumps, the projects ensure that the pumping stations can maintain sufficient drainage capacity even if some pumps become not operational. For example, in a pumping station with five pumps, each capable of draining 1 m³ per second (5 m³ per second for the entire station), upgrading each pump's capacity to 1.25 m³ per second would allow the station to maintain a total drainage capacity of 5 m³ per second with only four pumps in operation, meaning that the original drainage capacity can be maintained even if one pump is undergoing maintenance. This renovation is also being carried out as part of the plan to enhance system reliability with backup equipment, and the pumps will be overhauled, modified, and reused to increase drainage capacity.

The renovation and renewal of the pump equipment is expected to improve the reliability and functionality of the entire facility and contribute to creating a safe and secure environment for people living in the basin.

Pump Application	Rainwater Pump 8	Rainwater Pump 9	Rainwater Pump 10
Type & Size	SPV1800	SPV1800	SPV1800
Quantity	1 unit	1 unit	1 unit
Motor Output	1,830 kW	1,830 kW	1,830 kW

02

Intake Pumps for Underground Dams Contribute to Stable Irrigation Water Supply

Received an order from Miyako Irabu Agricultural Water Management Office, Okinawa General Bureau for the 3rd water intake pumps and related manufacturing and installation work for Nakahara Underground Dam

Miyako Island is located approximately 300 km southwest of Okinawa Island, and its emerald green sea, known as Miyako Blue, is said to be the most beautiful in the East. Marine sports, numerous spectacular scenic spots, unique

flora and fauna, beautiful traditional crafts, exclusive island cuisine, and other attractions are drawing visitors, and the number of tourists visiting Miyako Island has been increasing every year.



Miyako Island, which has a subtropical oceanic climate, has an annual average temperature of 24 degrees Celsius, making it hot and humid, but has been known since ancient times as an island with scarce water resources. Although the island receives a certain amount of annual precipitation from the rainy season and typhoons, the thick layer of Ryukyu limestone beneath the surface red soil has low water retention capacity and without any rivers or lakes, most of the rainfall runs off into the sea.

Due to these natural conditions, Miyako Island and the adjacent Irabu Island and Kurima Island have suffered from chronic droughts. As a countermeasure, construction of underground dams has been carried out since 1989 as a project of the Agricultural Land Development Agency. An underground dam is a water storage facility that holds back groundwater by building a wall underground, storing water in the Ryukyu limestone voids to raise the groundwater level, and uses that water for irrigation and daily life. The construction of underground dams has made it possible to secure irrigation water, but due to changes in farming systems over time, water demand has increased in recent years, making it difficult to provide a sufficient supply with the existing underground dam capacity alone. As the water shortage is becoming more serious on the adjacent Irabu Island, new underground dams including the Nakahara Underground Dam are currently being constructed in the Miyako Irabu area.

The newly ordered work involves the installation of deep well submersible pumps in the underground dam to supply irrigation water to the areas on Irabu Island and Miyako Island. The additional pump equipment will help farmers on these islands improve work efficiency and support the expansion of the high-value-added crops that are the specialties of the area, such as sugarcane, leaf tobacco, and mangoes. This will help improve agricultural productivity and develop the local economy, and thus the prosperity of Miyako Island.

Pump Application	Intake Pump	Intake Pump
Type & Size	F/TB125/5N45	F/TB125/4N37
Quantity	7 units	1 unit
Motor Output	45 kW	37 kW



03 Pumps for CO₂ Separation and Capture at an Ammonia Production Plant

Received an order for Major Solution Pump for the Osaka Works of Mitsui Chemicals, Inc.

The Osaka Works of Mitsui Chemicals, Inc. is located in the Sakai-Semboku coastal industrial area, one of Japan's leading industrial areas. The works is equipped with a large pier capable of accommodating 100,000-ton tankers, and around half of its products and raw materials are transported by ship. Its location, which offers excellent advantages for operations and logistics, makes the works ideal for efficient manufacturing operations.

The works mainly produces ammonia, urea, silane gas, polypropylene, phenol, and bisphenol A, and we received an order from this works for Major Solution Pump for use in CO₂ separation and capture at the production plant of ammonia, one of its primary products. This order is the result of a

comprehensive evaluation of Torishima's extensive track record in delivering large, high-pressure pumps, along with its high pump efficiency and well-established service system.

Pumps for CO₂ separation and capture technology are an area that Torishima plans to focus more on in the future. We will continue to strive to increase orders for pumps with superior energy efficiency.

Pump Application	Major Solution Pump
Type & Size	CDKS250×200
Quantity	1 unit
Motor Output	1,150 kW

This area is intentionally left blank on the website.
Thank you for your understanding.

05 Protecting Aquatic Life through Fish Friendly Pumps

Received an order for four Fish Friendly Pumps for Yuen Long Barrage Pumping Station, Drainage Services Department, the Government of the Hong Kong Special Administrative Region

Torishima (Hong Kong) Limited, a consolidated subsidiary of Torishima, has received an order for four Fish Friendly Pumps (FFP), which will be delivered to the Yuen Long Barrage Pumping Station, currently under construction in the Yuen Long City for the Drainage Services Department (DSD), the Government of the Hong Kong Special Administrative Region, which manages rivers and sewers in Hong Kong.

In recent years, there has been a growing trend, especially in Europe, to replace drainage pumps with FFPs to prevent eels and other fish in rivers from being sucked in and killed. In response to these needs, Torishima has developed FFP and received its first order.

The basic structure of the pump is the same as that of a normal vertical mixed-flow pump, but the following innovations are incorporated to improve fish survival rates.

- Reduced number of impeller blades
- Rounded impeller tips and increased thickness
- Lower rotation speeds

When DSD considered introducing FFP to demonstrate its commitment to the environment and aquatic life, it initially planned to use the FFP from another company instead of Torishima's.

However, Torishima had earned DSD's trust based on its extensive track record of deliveries and construction projects. By actively making technical proposals and presentations to carefully explain the advantages of Torishima's FFP, DSD decided to adopt it.

In addition to our FFP, the largest-diameter pump in Torishima's history is also scheduled to be delivered to the pumping station. The construction of the pumping station,

designed to be friendly for both residents in the surrounding area and fish in the water, is progressing steadily and is scheduled for completion in 2027.

Pump Application	Low Flow Pump
Type & Size	SPV800F
Quantity	4 units
Motor Output	150 kW

TORISHIMA NEWS | TORISHIMA NEWS | Nov. 2024 - Jan. 2025

TR-COM (Rotating Equipment Monitoring System) Adopted for IoT Sensors in Yokohama Waterworks Bureau's Demonstration Test for Remote Monitoring of Pumping Stations

At Yokohama City's 23 pumping stations, pumps operate 24 hours a day, 365 days a year, and four staff members each carry out visual inspections of one pump per day so that all are inspected once each month to ensure the safety of the equipment. Since the inspection is performed visually, it requires experienced inspectors. The Yokohama Waterworks Bureau anticipates that if veteran employees with extensive knowledge were to retire or if their numbers were to decrease in the future, there would be challenges in securing engineers and maintaining the monitoring system.

To address this issue by establishing a pump equipment maintenance method using ICT, a demonstration test of remote monitoring using TR-COM was conducted at the Bukko pumping station from July 2024 to January 2025. The test was conducted to assess the pump vibration data, which was automatically and periodically measured using TR-COM, and to verify whether it could detect signs of pump deterioration.

TR-COM can be used with all types of rotating equipment. By installing a wireless sensor (b-Monitor) on the equipment, it can measure high-frequency vibrations of 10 kHz and detect early-stage flaws that may indicate potential failure. In addition, the gateway (t-Gateway)

allows for automatic data collection which enables remote maintenance and management.

Based on this demonstration test, we aim to clearly identify how the workload of data collection and monitoring inspections can be reduced. By introducing TR-COM, we hope to help Yokohama City address the maintenance challenges of the declining engineer workforce and help support a sustainable operational system.



Sensor
"b-Monitor"

Exhibiting at Smart Factory Expo

We exhibited at the Smart Factory Expo held at Tokyo Big Sight from January 22 to 24 to introduce TR-COM (Rotating Equipment Monitoring System). The Smart Factory Expo is an exhibition of the latest technologies and solutions, including IoT solutions, AI, and FA/robotics that can be used for DX and efficiency improvements in production and manufacturing.

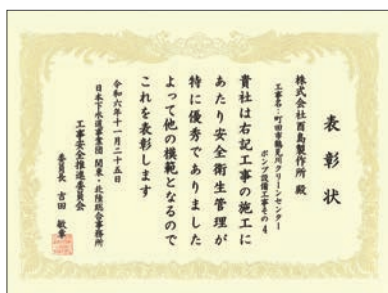
Many customers visited the Torishima's booth at this year's exhibition and asked more questions than in previous years' exhibitions, indicating a growing need for predictive maintenance, remote monitoring systems, and labor-saving in inspection of factory equipment.



Awarded as an Excellent Safe Contractor by Japan Sewage Works Agency

Torishima was recently awarded by the construction safety promotion committee of the Kanto Hokuriku Regional Office, Japan Sewage Works Agency for our work on the 4th pump equipment project at the Machida City Tsurumi River Waste Disposal Center. The purpose of this award is to recognize construction companies and site managers for their excellence in safety management on projects completed in the previous fiscal year, by honoring them as excellent safe contractors. It also aims to encourage the adoption of construction systems that prioritize safety and to support the growth of the construction industry.

This project involved replacing two sewage pumps installed approximately 20 meter below ground level. Despite overlapping construction schedules with the water treatment and electrical facilities that were carried out simultaneously, we successfully completed the work safely through close process coordination with Machida City, the Japan Sewage Works Agency, and other construction companies.



Compliance Training

The FY2024 compliance training was held for all employees of Torishima Pump Mfg., Kyushu Torishima, and Torishima-AESSEAL Japan. The training was designed to enhance every employee's awareness of their social responsibility as a member of Torishima, with the following three themes.

- 1. Harassment:** refreshers on what constitutes harassment, its effects, and preventive measures
- 2. Compliance:** corporate governance codes and examples of compliance violations, taking into account recent ESG perspectives
- 3. SNS measures:** essential SNS literacy skills as SNS usage expands

Held a Pep Rally for Scholarship Recipients —Harada Memorial Foundation

On November 9, the Harada Memorial Foundation held a scholarship recipient pep rally in Saga City. The pep rally was attended by a total of 190 people, including the scholarship recipients, Chairman Harada, Mr. Yuji Ochiai, Vice Governor of Saga Prefecture, foundation officials, selection committee members, principals of high schools in Saga Prefecture, and faculty members responsible for scholarship recipients.

At the pep rally, Chairman Harada extended words of encouragement, saying, “We hope that you will cherish your individuality and grow up to become members of society who can make valuable contributions.” The event was a hope-filled pep rally, with scholarship recipients expected to graduate next spring also speaking boldly of their future paths and aspirations.

The foundation was established in 1981 with private funds by the late former Chairman and President Ryuhei Harada, based on the philosophy, “Liquids and life are inseparably connected in human society, and pumps, which handle these liquids, are indispensable for the development of human society.”

The foundation became a public interest incorporated foundation in April 2011 and has further enhanced its

activities. Over the past 42 years, the foundation has awarded 351 research grants, providing valuable research funding for researchers at various universities and technical college (kosen). Scholarship grants are available to graduate, undergraduate, and technical college students in Kyushu and high school students in Saga Prefecture, for a total of 1,355 students. Other programs include a scholarship grant program for high school graduates from Saga Prefecture who have entered universities in the Kansai region (Hagakure Scholarship Students) and a grant program to promote athletics in Saga Prefecture.



Aiming to Be a Certified Technician —Late FY2024 Technical Proficiency Test



On January 26, the practical examination on CAD Work for Mechanical Drafting, part of the late FY2024 Technical Proficiency Test, was held at the head office, and a total of 17 employees from Torishima took the examination. One employee took the examination for Advanced Casting, and one employee took the written and practical examinations for Mechanical Inspection Operation at a separate venue. Following the practical examination, a written examination on CAD Work for Mechanical Drafting was held on February 2 at another venue. The technical proficiency test is a national examination administered by the Ministry of Health, Labour and Welfare. Torishima also provides venues for practical examinations. We are confident that all the examinees will pass these examinations and move up to the advanced level.

Coming-of-age Ceremony to Celebrate New Beginnings for Young Adults



On January 22, the coming-of-age ceremony was held at the head office to celebrate new beginnings for young adults. On January 23, the same ceremony was also held at Kyushu Torishima. At the ceremonies, congratulatory speeches were given, commemorative gifts for adulthood were presented, and receptions were held.



Toripon School



Since FY2008, Torishima has been visiting elementary schools near its headquarters and factories to teach students about the fun and rewards of manufacturing, with the aim of nurturing the dreams and hopes of children who will lead the next generation. A team of young employees selected from each department played the role of lecturers. The sessions were held between July and November in 2024 for two classes of fourth-graders at an elementary school.

Based on the theme, "Let's continue to grow together forever through collaboration in manufacturing," the children created a piston pump that demonstrated water flowing from bottom to top. They then participated in a relay race using the pump to convey water, as well as a game where they had to rescue Toripon. The children had fun learning about pumps and worked enthusiastically on making pumps. It was an unforgettable experience for the Torishima members.



School Schedule

Day 1 Learn about the roles of various pumps

Activity

Convey water manually

Day 2 Learn how a pump works - Piston pump creation

Activity

Use a pump to convey water and compare the amount of water conveyed manually with the amount conveyed by the pump

Day 3 Experience pumps

Activity

Use the piston pump to raise the water from the bottom up and rescue the hanging Toripon!

Comments from the Torishima members (excerpts)

The members supported each other and successfully completed the Toripon School. The children also actively participated in the activities, which ensured everything went smoothly and made the time incredibly enjoyable. Thank you so much, everyone!

During these five months I learned the valuable lesson that when advancing a project, it is essential for a team leader to grasp what has been done and what has not, as well as to provide schedules and guidelines.



Through a lot of discussion and cooperation with the members starting from the summer, we successfully completed the three-day class. It was challenging, but I believe that the experience of working hard together toward a common goal will be valuable for my future work. Thank you to all the machining staff for coordinating their work and kindly allowing us to participate in the Toripon activities.



The Toripon medals handed to the children were produced using the Torishima's additive manufacturing technology (metal 3D printer).



Torishima Pump Mfg. Co., Ltd.

Head Office: 1-1-8 Miyata-cho, Takatsuki-shi, Osaka 569-8660, Japan
www.torishima.co.jp/en

Torishima is Bronze Partner of the Expo Site Development Participation in Expo 2025, Osaka, Kansai, Japan.



OSAKA, KANSAI, JAPAN
EXPO2025



©Expo 2025