

1. Environmental Plant Business

(Related SDGs)



Municipal Solid Waste Treatment Plant Business

Since developing waste incineration technologies using proprietary technology and delivering Japan's first fully continuous mechanical waste incineration plant in 1963, Takuma has built more than 360 municipal solid waste treatment plants in Japan. Subsequently, we have introduced numerous new technologies and achieved the No. 1 share of plant deliveries in Japan. Today, we continue to refine our technologies and embrace the challenge of

operating to the highest possible standards.

Takuma will continue to contribute to stable regional waste treatment by pursuing integrated initiatives ranging from the construction of municipal solid waste treatment plants to after-sales service for those facilities through a broad product line and service based on an extensive track record as the industry's leading company.

Plant construction

• Stoker-type incinerators

Stoker-type incinerators are the most common type of waste treatment plant in Japan, and they are a flagship Takuma product. Today, most incinerators operated by local governments throughout Japan use this treatment method, and Takuma delivers secure, safe, stable, and highly efficient waste treatment in response to customers' needs through advanced technology and expertise based on its extensive track record.

Realizing stable combustion

① Stoker-type incinerators

Stoker-type incinerators realize stable combustion of a variety of waste thanks to proprietary stoker technology, state-of-the-art instrumentation, and advanced automatic combustion control.

Reducing environmental impacts

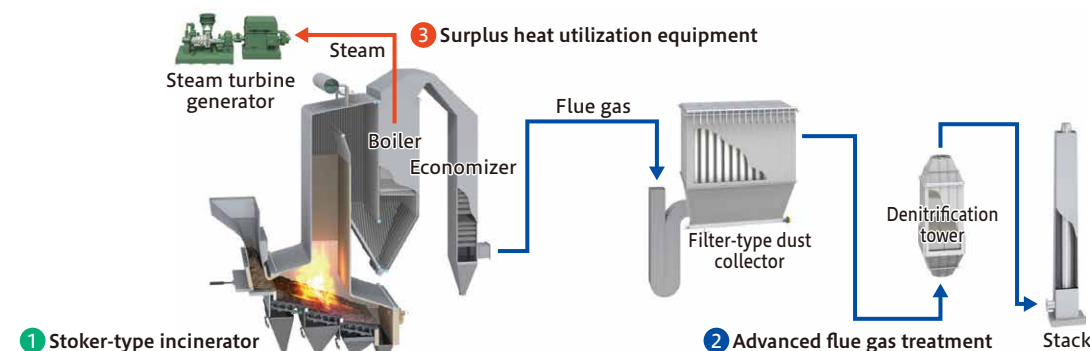
② Advanced flue gas treatment

We help reduce environmental impacts with advanced flue gas treatment technology that reliably removes toxic substances from flue gas and technology to reduce the amount of fly ash going to landfill.

Realizing high efficiency power generation

③ Surplus heat utilization equipment

High-temperature, high-pressure boilers and other equipment maximize recovery of the energy stored in waste to realize high-efficiency power generation.



Incineration of solid waste | Stable combustion

Solid waste introduced into the incinerator burns consistently at a temperature of 850°C or higher as it moves on the stoker (a step grate combustion equipment).

Flue gas treatment | Reliable removal

Flue gas, flowing out of the boiler and economizer, contains toxic substances which are then reliably removed by a filter-type dust collector and denitrification tower, before being released from the stack.

Utilization of surplus heat | Effective utilization of energy from waste

Heat generated by the waste incineration process is recovered as steam by the boiler and economizer and used to generate electricity at a steam turbine generator. The recovered steam is also used as a heat source in the plant and nearby facilities, for example for hot water, heating, and cooling.

• Methane gasification facilities

Recently the Ministry of the Environment has been encouraging the introduction of Methane gasification facilities for use with municipal solid waste. Takuma is helping reduce incinerated waste volume and environmental impacts with its combined system of methane fermentation and incineration for municipal solid waste, which recovers the maximum amount of energy possible from waste to realize highly efficient power generation. (The system received the New Energy Foundation's Chairman Award at the FY2014 New Energy Awards.)

Maintenance

Annual maintenance is essential in order to ensure stable operation of municipal solid waste treatment plants. Maintenance demands sophisticated technological capabilities as well as experience, because in addition to a range of expertise drawn on waste treatment plants, the manner in which their equipment deteriorates over time varies with the properties of the waste they process. Takuma takes maximum advantage of its accumulated expertise to contribute to stable waste treatment and long-term facility operation by developing long-term repair plans, carrying out elaborate site investigations, and then performing maintenance that has been optimized in terms of both timing and content.

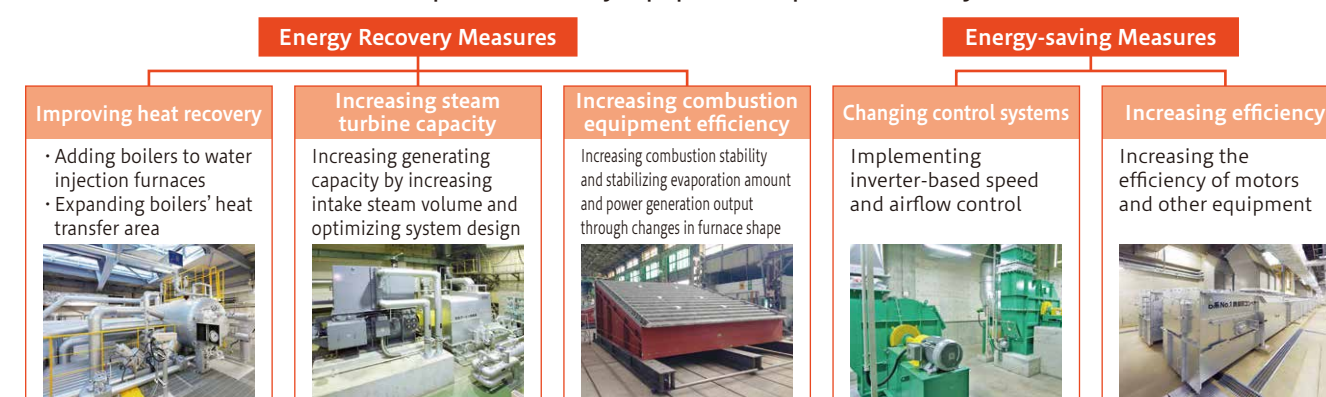


Replacing boiler tubes

Primary equipment improvements

70%* of all Japanese municipal solid waste treatment plants, which comprise a key type of infrastructure, have been operating for at least 15 years, and demand for updating plants and extending their service life is growing due to their aging. Using the advanced heat utilization and energy-saving technologies we have developed as a boiler and environmental plant manufacturer, Takuma helps extend plant service lives and reduce CO₂ emissions through high-added-value primary equipment improvement projects. *According to research conducted by the Ministry of the Environment in 2018 and reported in "Municipal Solid Waste Emissions and Disposal."

Example of a Primary Equipment Improvement Project



Long-term comprehensive operation business

The Long-term comprehensive operation business, in which customers enter into contracts covering both operation and maintenance management for a term of 10 to 20 years, has become the most common approach in the industry in recent years, for example in the form of DBO projects.

We have currently collected plant operating and maintenance management data for more than 10 municipal solid waste treatment plants with **POCSYS®**, which we use to provide real-time integrated management of plant and

equipment operating status.

Additionally, we operate Solution Lab to further enhance our remote monitoring and operational support functions for existing plants. Our Solution Lab provides remote monitoring and operational support by monitoring plant status and operating conditions 24 hours a day. It utilizes the latest Information and Communications Technologies (ICT), including the IoT, big data, and AI, to provide optimized solutions for customers and support to help ensure safer, more secure plant operation.

Takuma's Solution Lab remote monitoring and operational support facility

Optimal solutions that meet customers' needs

We provide high-quality solutions that have been optimized for customers based on data obtained from remote monitoring and operational support by identifying and analyzing issues related to plant operations using the latest Information and Communications Technologies (ICT).

We also create new value in the form of distinctive technologies and services so that we can respond to the social challenges that will face society in the future.

Safe, secure operation and efficient management

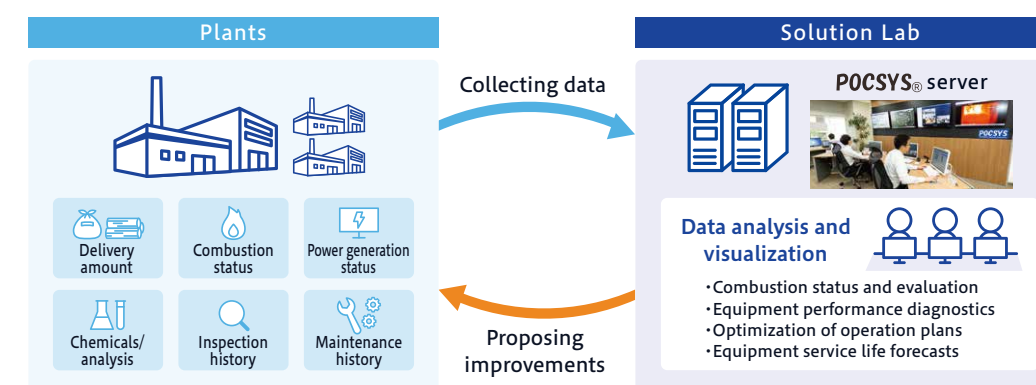
We provide even safer, more secure operation and more efficient management for customers through remote monitoring and operational support functions that utilize the latest ICT.

In the event of the unforeseen circumstances, our highly experienced engineering staff can provide precisely targeted guidance to customer sites 24 hours a day.

Human resources and technological development

In addition to ICT, facilitating the growth of the people involved in operations is essential in order to ensure plants to be operated in a stable manner over the long term.

Solution Lab improves workers' technical skills through highly effective education and training using operational training simulators.



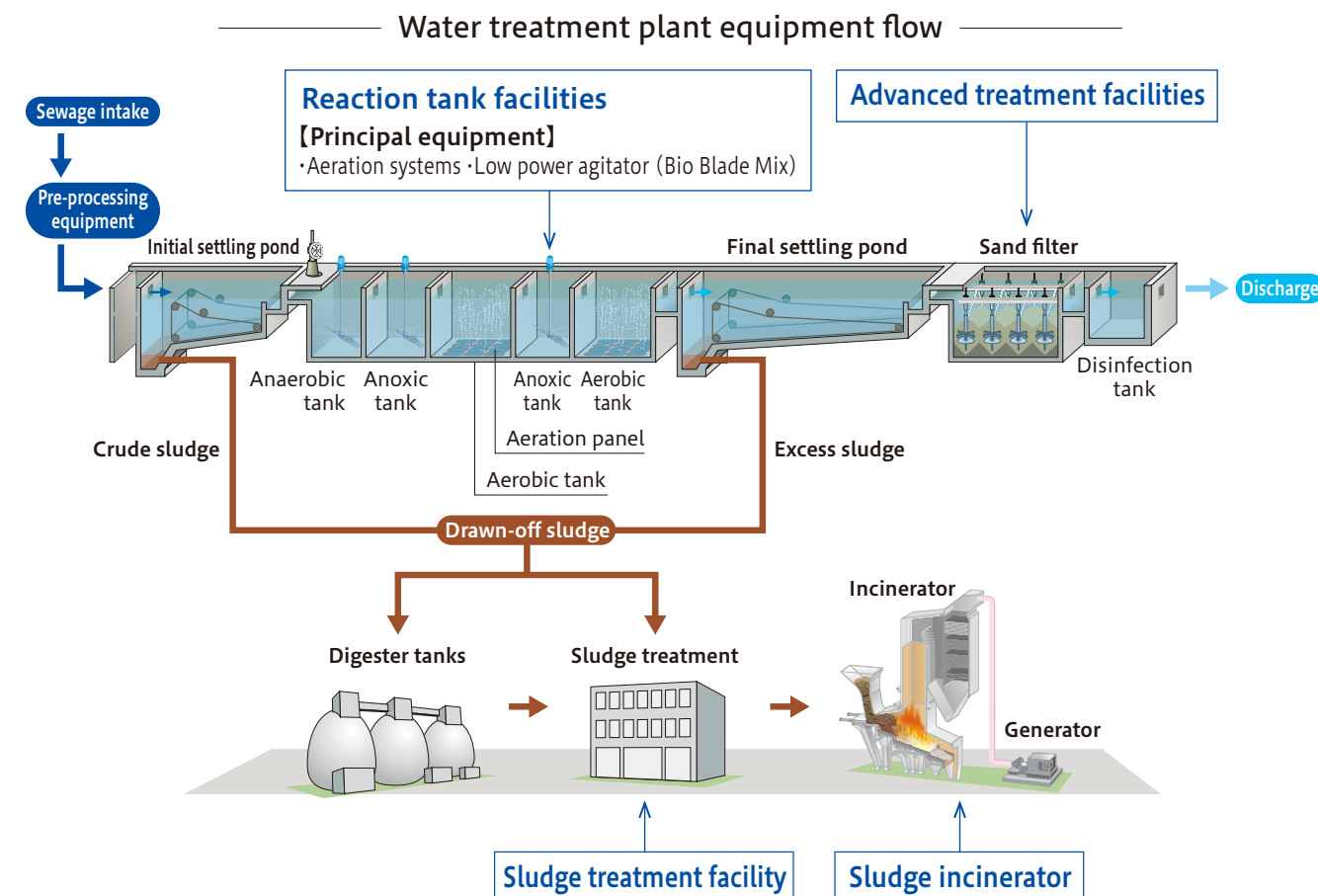
Water Treatment Plant Business

Takuma has delivered numerous systems, particularly in relation to technologies for advanced treatment of wastewater, in an effort to help conserve the aquatic environment.

The recent trend is for plants to be called upon not only to purify water, but also to reduce power use by treatment equipment and create energy from sewage sludge. In an effort to meet these requirements, Takuma has been focused on developing a step grate stoker type sewage sludge incineration and power generation system and implemented technologies using waste heat from the incineration process to generate electricity.

Going forward, we will continue to help conserve the aquatic environment by supplying products that meet the needs of our times.

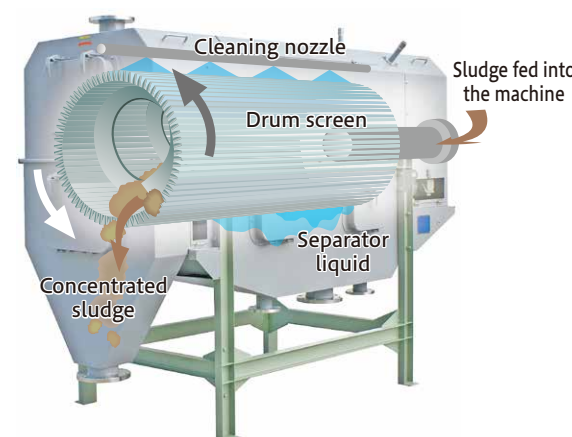
Water Treatment Plants



- **Sludge treatment facility 【Principal equipment】**

- Rotating drum-type concentrator

A rotating drum-type concentrator consists of a drum-shaped screen consisting of metal wedge wire that separates and concentrates solid and liquid components from coagulated sludge as the drum rotates. Following solid-liquid separation, sludge is transported to the exit side of the system as it is concentrated and pushed by spiral-shaped vanes on the inside of the rotating drum. Thanks to a simple design whose operation hinges on a slowly rotating drum screen, the system uses less power than its conventional counterparts, yielding high energy savings.

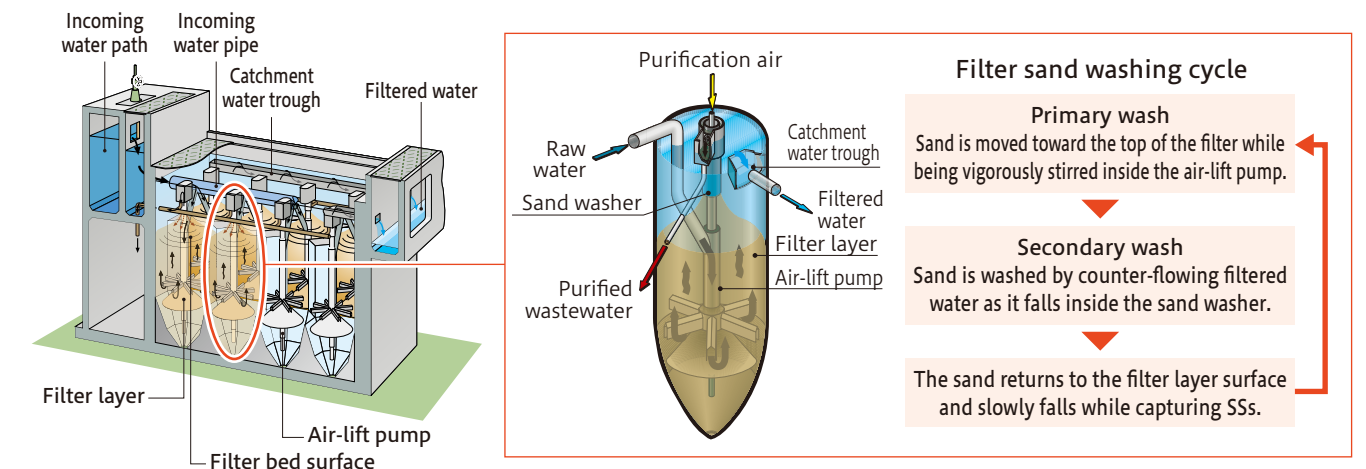


- **Advanced treatment facility [Principal equipment]** · Upflow moving-bed sand filtration systems (Uniflow Sand Filter)

Measures undertaken to improve the quality of public water sources and the need to reuse treated sewage are spurring demand for more advanced water treatment. Upflow moving-bed sand filtration systems (Uniflow Sand Filter), which eliminate suspended solids (SSs) from water, are used in a variety of fields, including in final processing at sewage treatment plants and in pre-processing to remove solids at water plants. This particular model is a long-selling product featuring proven water purification technology of

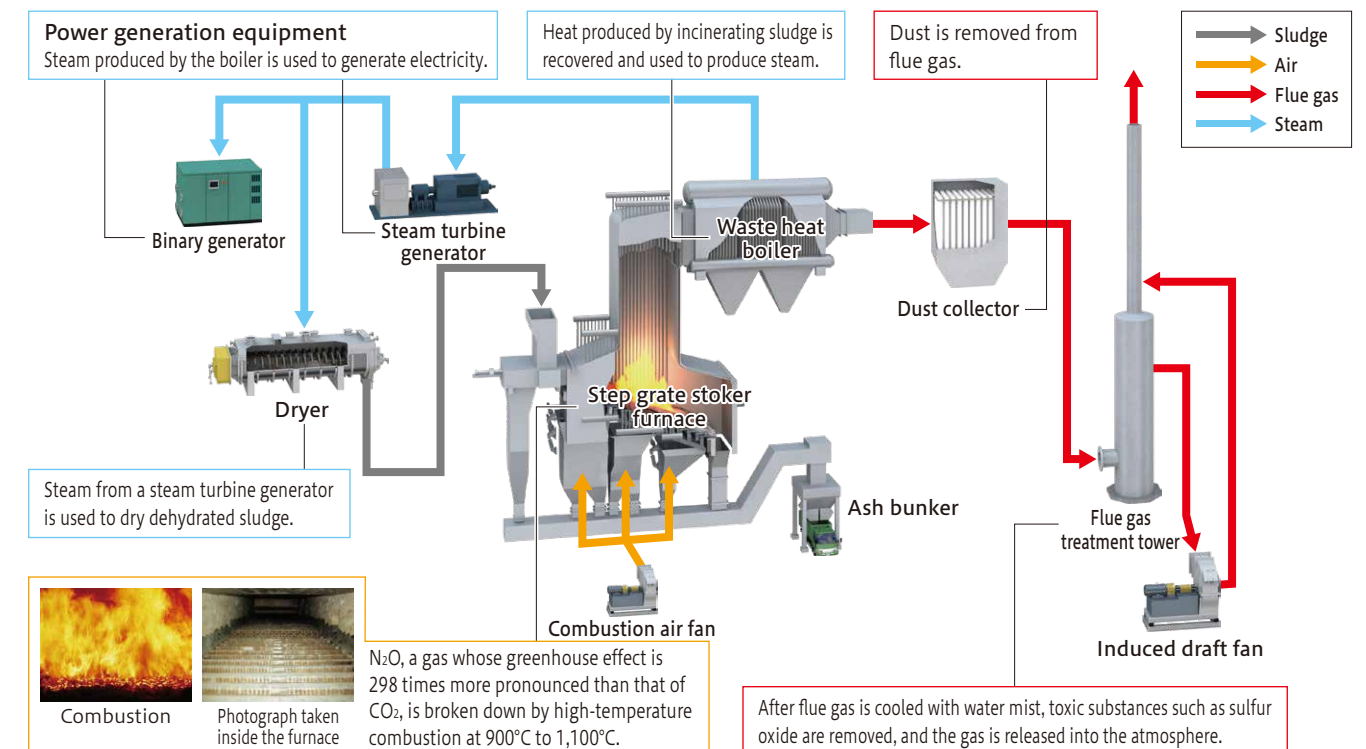
which we have delivered more than 2,700 units in Japan. A design that combines filtration treatment with continuous backwashing of the filtration sand ensures stable operation and exceptional maintainability.

The product line includes high-speed models with double or triple the filtration speed of the standard model as well as denitrifying and dephosphorizing variants that add functionality for eliminating nitrogen and phosphorus to standard SS elimination functionality.

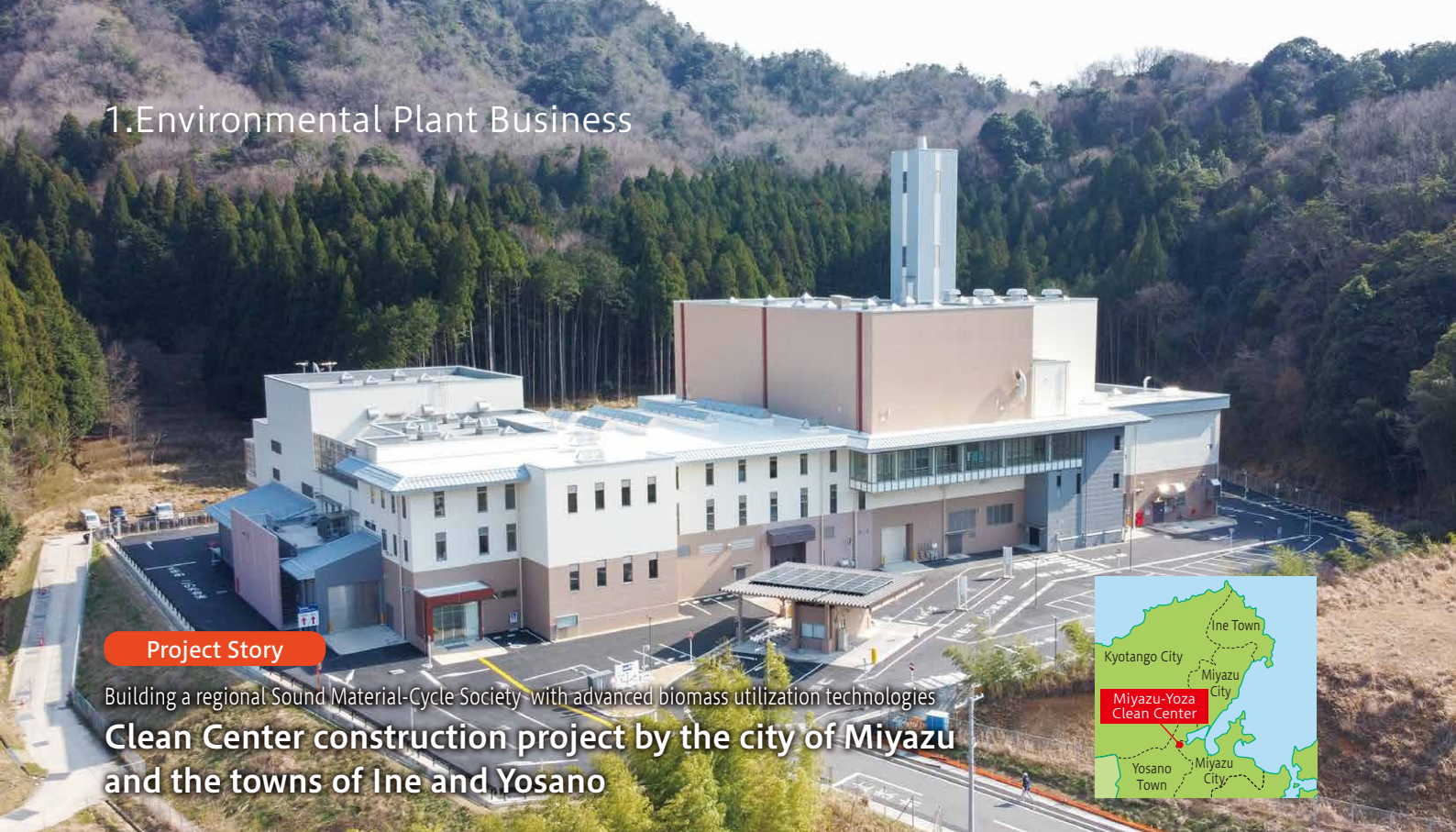


- **Sludge incinerator [Principal equipment]** · Step grate stoker type sewage sludge incineration and power generation system (step grate stoker furnace and innovative step grate stoker furnace)

Because it contains a large amount of energy, sludge generated during the sewage treatment process has been attracting attention in recent years as a biomass resource. We are taking advantage of our core incineration and boiler technologies to make effective use of the energy contained in sludge by using it as a fuel to generate electricity. Following the system's selection for inclusion in the Breakthrough by Dynamic Approach in Sewage High Technology Project (B-DASH) by the Ministry of Land, Infrastructure, Transport and Tourism (Japan) in FY2013, we have received orders for the system from the cities of Tokyo and Sapporo.



1.Environmental Plant Business



Project Story

Building a regional Sound Material-Cycle Society with advanced biomass utilization technologies
Clean Center construction project by the city of Miyazu and the towns of Ine and Yosano

Facility overview

Operator	Miyazu Yoza Union Environment	Project type	DBO (Design, Build, Operate)
Facility name	Miyazu-Yoza Clean Center	Project period	Construction phase: April 2016 to June 2020 Operational phase: July 2020 to February 2040

Miyazu-Yoza Clean Center is a wide-area waste treatment facility operated by a city (Miyazu) and two towns (Ine and Yosano) in northern Kyoto Prefecture. The complex, which consists of an energy recovery-type waste treatment facility (waste incineration + methane gasification) and a material recycling facility, incorporates the latest biomass technologies and will contribute to the realization of a Sound Material-Cycle Society.

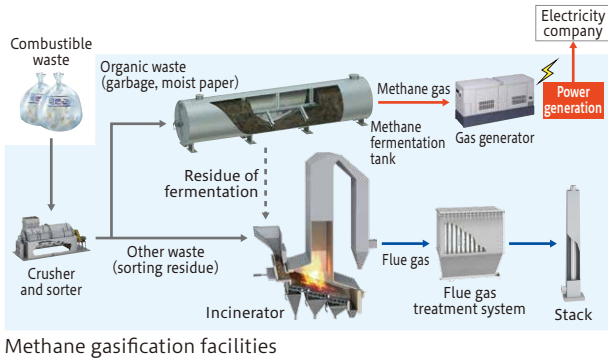
Energy recovery-type waste treatment facility

(Waste incineration facility)
The waste incineration facility uses high-temperature heat from the waste incineration process to make hot water.

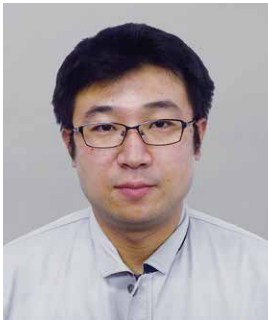
(Methane gasification facility)
The methane gasification facility recovers methane gas released by waste and uses it to generate electricity. The heat from that process can be reused.

Material recycling facility

The material recycling facility sorts and recycles waste such as noncombustible refuse, plastic containers and packaging, and cans. Sorting helps extend the service life of final disposal site by reducing the volume of waste to be landfilled.



Message from the engineering coordinator



Hiroshi Kogita
Section 2, Environmental Design Dept. 3
Engineering Center
Takuma Co., Ltd.

The complex consists of an energy recovery-type waste treatment facility (waste incineration + methane gasification) and a material recycling facility. The methane gasification facility ferments waste, paper, and other material that makes up the combustible waste stream to produce methane, which is then used to run a gas generator, allowing it to be recovered as electrical energy. Electricity that remains after certain local load requirements are met can be sold back to the grid.

In designing the methane gasification facility, we worked hard to precisely apply the expertise we have gained through past experience and to incorporate the latest information about other state-of-the-art facilities into the plant after a careful vetting process.

It is our hope that in addition to its basic role of treating waste in a hygienic manner, the plant will contribute to material recycling and to the effective use of biomass energy.



Construction

This project, through which the city of Miyazu and the towns of Ine and Yosano are seeking to realize a safe and hygienic living environment, was about more than just fulfilling the basic role of a waste treatment facility. Reflecting its belief that the project is one in which a new future can be pioneered through advanced biomass utilization technologies, the Takuma Group sought to create a model case demonstrating how a project could help create a Sound Material-Cycle Society. In undertaking the project, we identified three core concepts: providing peace of mind and vitality to the region, protecting the environment and coexisting with nature, and supporting a sound material cycle into the future.

Similarly, in planning the facility, we identified three design concepts: nature, history, and people. In addition to adopting a design that blends into the area's rich natural environment, we incorporated the distinguishing shapes of the region's traditional arts and crafts into the design, along with features that express gentle hospitality toward visitors, for example through the natural warmth of wood.

As it turned out, the construction phase posed many unexpected challenges, including the discovery of underground obstructions and flooding in a waste pit due to heavy rainfall. Nonetheless, we were able to overcome these obstacles to complete a facility whose advanced equipment is unique in Japan.

Construction site



Message from the construction coordinator



Takahiro Kimura
Section 2, Civil & Architectural Engineering Dept.
Construction Center
Takuma Co., Ltd.

The facility's location next to Yoza-Amanohashidate IC about 10 minutes by car from Amanohashidate, one of the three most famous scenic spots in Japan, makes it a picturesque destination in its own right.


Although the greatest concern when construction began in January 2017 was delays caused by accumulated snowfall during the winter, the project was blessed with a comparatively mild winter. However, in addition to boulders and other underground obstructions, a variety of problems, including inflows of muddy water caused by heavy rainfall in nearby mountainous valleys, impacted the construction schedule and led to a delay of about 11 months after discussions with the customer.

We were able to overcome the challenges with the customer in cooperation with a local general contractor with whom we shared the construction work, sharing information about problems arising in each scope of the plant construction and the civil work, and revamping the schedule.

Our hope is that the facility, which was completed thanks to the understanding and cooperation of the customer and local residents, will continue to operate and develop as a site that can contribute to the region as part of Takuma's comprehensive operation business.


For more than 100 years, Takuma has delivered numerous boilers and plants of various types and specifications, including for use in power, shipping, and air-conditioning applications, while accumulating extensive experience and expertise as a pioneer of the boiler industry. We will continue to help realize a sustainable society while working to resolve customers' issues as well as social problems through our business activities.

Contributing to society through business activities




Promoting renewable energy

We are helping promote renewable energy by supplying biomass power plants.




Preserving the environment: water, air, and mountain forests

We are helping preserve the global environment by supplying plants that utilize appropriate technologies and systems to protect the environment.



Making effective use of unutilized resources

We are helping realize a Sound Material-Cycle Society by supplying plants that can efficiently burn fuels and waste products that have gone underutilized in the past.



Reducing CO₂ emissions

We are helping realize a low-carbon society by supplying high-efficiency power plants.

Value provided by Takuma's Energy Plant Business

1. Plant engineering

We supply plants that combust a variety of fuels and waste in a stable manner over extended periods of time based on our extensive track record of deliveries.

Biomass power plants

We supply power plants that can utilize a variety of biomass fuels to operate in a stable manner over extended periods of time, including unused lumber, lumber waste, construction waste, PKS (Palm kernel shells), pellets, livestock manure, bagasse, and paper sludge.

Industrial waste incineration and power generation facilities

We supply facilities that can recover heat in a highly efficient manner, including by using it to generate electricity, after burning even difficult-to-treat waste in an appropriate manner.

2. After-sales service

We offer service designed to ensure that plants can operate in a stable manner over the long term based on our advanced technologies and extensive experience.

Maintenance

We offer proposals for, and carry out, plans for periodic inspections and maintenance, functional improvements, and preventive maintenance in order to maintain high plant performance and prevent unplanned stoppages.

O&M*

We accept orders for operation, maintenance, and management on 20-year terms to reduce workload and life cycle costs so that customers can maximize the profitability of their businesses.

* O&M: Operation & Maintenance



Products and services


Biomass Power Plants

These plants produce heat and power from a variety of biomass fuels, including wood fuels such as wood chips and bark, PKS, and bagasse.


Four Advantages

Advantage 1 Ability to burn a wide range of fuels


These plants can effectively use a variety of substances that have been difficult to use in the past as fuel.




Wood chips




Bark




Wood pellets




PKS




Bagasse



Livestock (poultry) manure



Rice husks

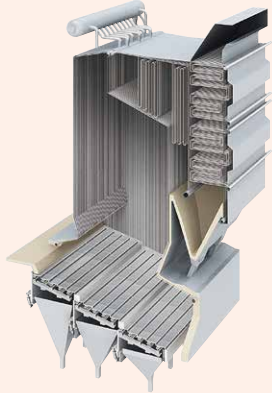


Corn residue


etc.

Advantage 2 Custom designs


From our four combustion furnace types, we select the model that best suits each customer's plan and design a plant accordingly.




Step grate stoker



Traveling stoker



Bubbling fluidized bed



Circulating fluidized bed

Advantage 3 Stable operation over the long term

We supply plants that can operate in a stable manner for decades with the least number of breakdowns or sudden stoppages by designing them based on our extensive experience and expertise and by maintaining them in an optimal manner, even when biomass with inconsistent properties is used.

Advantage 4 High-efficiency, energy-saving performance

We supply plants characterized by high transmission end efficiency and boiler efficiency by selecting the optimal combustion method and boiler for each installation and by reducing auxiliary power and the unburnt portion.

2.Energy Plant Business



Project Story

Supporting continuity of the renewable energy industry with a biomass power plant
Biomass power plant construction project in Toyohashi, Aichi Prefecture

Customer	SALA e POWER Co., Ltd.
Project name	SALA e POWER Biomass Power Plant Construction Project
Power output capacity	22,100 kW 150 million kWh per year (Equivalent to the power used by about 40,000 households)
Principal fuel	PKS, wood fuel, wood pellets
Completion date	June 2019

The customer, a wholly owned subsidiary of SALA Energy Co., Ltd., which is a central company in the SALA Group and its array of energy-oriented businesses, was established to operate a wood biomass power plant business. The biomass power plant that we delivered in this project uses PKS imported from Southeast Asia as its primary fuel, and it uses the heat generated by burning a mixture of chips produced from unused lumber and other wood from Okumikawa in Aichi Prefecture and the Enshu region of Shizuoka Prefecture to generate electricity.

In addition to providing a clean, stable source of power that also helps reduce greenhouse gases regardless of the weather, the facility contributes to the appropriate protection of the region's woodland resources by working closely with local communities.

Message from the engineering coordinator



Ryoji Higuchi
Section 2, Energy Engineering Dept. 1
Project Center
Takuma Co., Ltd.

I currently work in Takuma's engineering oversight department, where I am involved with boiler plant planning and design.

Since the project represents SALA e POWER's first purchase of a Takuma boiler plant, we conducted a series of highly detailed meetings, starting during the design phase. I believe that we were able to construct a plant that would satisfy the customer as a result of the unity and effort by each and every person who was involved with the project.

Going forward, I look forward to contributing to plant planning and design so that we can leverage Takuma's experience and technology to better meet customers' needs.



Construction

This plant, which was constructed on a site of about 30,000 square meters on Mikawa Harbor in the Shinnishihama-cho district of the city of Toyohashi, is one of the few wood biomass power plants in Japan with a generating capacity of 150 million kWh a year, equivalent to the power used by 40,000 households. It uses PKS and lumber from forest thinning in Japan as fuel. Reflecting our belief that the project will play a key role in the adoption of renewable energy in Japan, we emphasized an early start of operations and thorough safety management in its construction.

Construction began in April 2018, and commissioning began in April 2019. Work was completed in June 2019, 15 months after it

began. The schedule was extremely tight for a plant of this scale, but we were able to transfer the facility to the customer after completing it without incident (while setting a record of about 160,000 accident-free hours). The project's successful completion is entirely due to the customer's cooperation and the hard work of the cumulative total of 20,900 employees of Takuma and of partner companies who were involved with the plant's construction.

We look forward to taking advantage of the experience gained from this project to build the kind of plants that are required by our changing times.

Construction site



Stakeholder message

Mr. Naohiro Fujita
President
SALA e POWER Co., Ltd.

The energy industry has embarked in an era of consolidation and borderless operations as a result of an across-the-board liberalization of the power and gas retail sector. The SALA Group has responded to these changes by augmenting its natural gas and propane supply operations with power retail and generation businesses. We believe that by putting in place structures that allow us to carry out integrated operations extending from power generation to power sales, we will be able to earn the trust, and meet the expectations, of regional society as well as of our customers.

We look forward to supplying clean, stable renewable energy to the region in a way that also helps reduce greenhouse gases by operating this biomass power plant built by Takuma and to deepen our partnership with local communities while bringing innovation to the infrastructure that underpins society by making effective use of unused lumber from nearby regions.

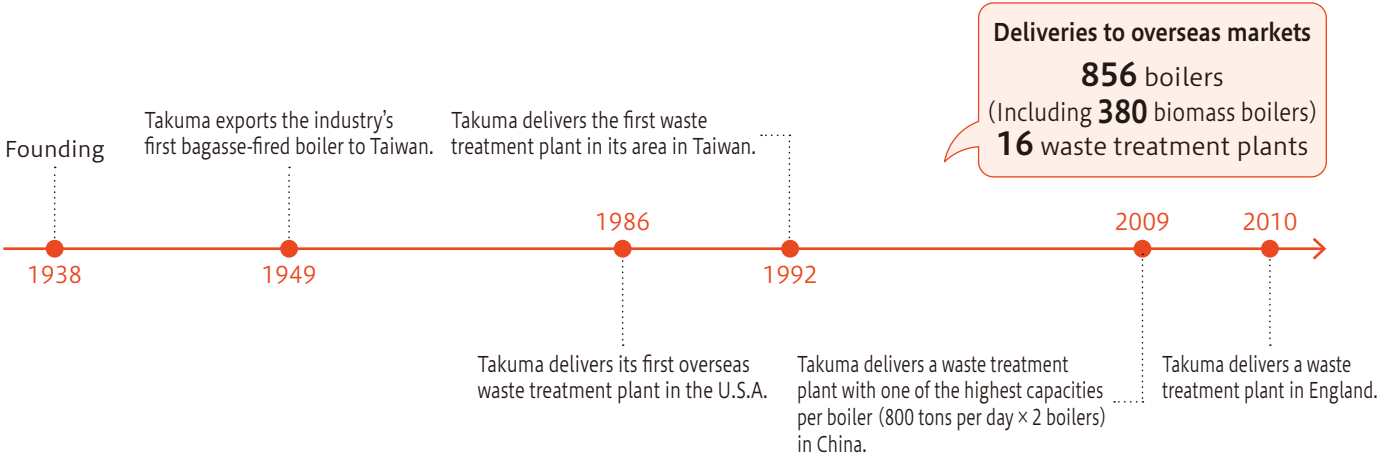
3.Overseas Business

Our overseas business began in 1949, when we exported the industry's first bagasse-fired boiler to Taiwan. During the subsequent 70 years, we have delivered more than 850 boilers to overseas customers. The combustion technologies we have developed since our founding can accommodate not only fossil fuels, but also special fuels such as bagasse, palm, and wood, and we have both supported local industry by providing a source of power for manufacturing facilities in various countries and promoted effective use of renewable resources.

We have also delivered 16 waste treatment plants to customers in the U.S.A., Taiwan, China, South Korea, and England. Takuma technology allows these facilities to incinerate a variety of waste products. We help these customers achieve stable operation over the long term by providing optimal solutions for waste streams whose properties vary by country and region.

In recent years, biomass boilers have received new

attention from the dual standpoints of global warming prevention and energy policy based on international frameworks such as the Paris Agreement, and there is now a major trend toward using biomass as a source of power at scale. At the same time, the appropriate treatment of waste is becoming a particularly pressing issue in developing nations. The path to solutions is by no means a simple one as a result of the complexities of environmental awareness, legal structures, budgets, and other considerations, but there is no doubt that plants provided by Takuma make a valuable contribution to achieve the Sustainable Development Goals (SDGs) in a number of areas, including by providing "affordable and clean energy", aiding in the development of "sustainable cities and communities," and so on. We will continue to harness such products, which are the embodiment of Takuma's technologies, to support customers' businesses while contributing to international society.



Our Achievements



LuTsao Incineration Plant, ChaiYi County (Taiwan)

嘉義縣鹿草垃圾焚化廠

Facility	Treatment capacity
Waste incineration power plant	900 tons per day (450 tons per 24 hours × 2 units)
Completed	Power output
December 2001	28,000 kW (rated)
Treatment type	
Step grate stoker	



TSM Group (Thailand)

TSM Power Co., Ltd.
Thai Udonthani Power Co., Ltd.

Facility	Steam conditions (normal operation)
Biomass boiler plant (4 units)	150 tons per hour × 4.2 MPaG × 450°C × 2 units
Completed	170 tons per hour × 4.2 MPaG × 450°C × 2 units
2 units in November 2012, 2 units in January 2019	Fuel
	Bagasse
Combustion furnace type	
Traveling stoker	



Kenana Sugar Co., Ltd. (Sudan)



This bagasse-fired boiler plant was delivered to a customer in Sudan. Kenana Sugar, which was established in 1976, is a large company that manages integrated operations extending from sugarcane cultivation to sugar refining. The project was part of a national effort to take advantage of water from the Nile River and the area's extensive insolation to greenify the region and transform it into a grain-growing area.

Takuma contributed to regional development by delivering six boilers in 1981, followed by one boiler each in 1999 and 2004, while contending with challenges including the project's scale, demanding

Facility Completed	Biomass boiler plant (8 units) 6 units in 1981, 1 unit in March 1999, 1 unit in January 2004
Combustion furnace type	Traveling stoker
Steam conditions (normal operation)	113.4 tons per hour × 3.2 MPaG × 360°C × 6 units 136 tons per hour × 3.1 MPaG × 370°C × 2 units
Fuel	Bagasse

requirements, a completely different culture, and a harsh work environment in distant Africa during a time when communications were limited. A number of national presidents and other distinguished guests from various countries attended an elaborate dedication ceremony following the project's completion in 1981.



A 10-Sudan-pound note featuring a depiction of Kenana Sugar to commemorate the facility's completion

Lakeside Energy from Waste Ltd. (UK)



We delivered this waste incineration power plant in 2010 to a customer in Slough, a suburb of London, England. The company's website introduces the facility as a plant that is large enough to supply electricity to power all 86,267 households in the area by processing 450,000 tons of waste to generate 306 GWh of power every year.

Overseas, private-sector companies are often responsible

Facility Completed	Waste incineration power plant
Treatment type	January 2010
Treatment capacity	Step grate stoker
Power output	1,370 tons per day (685 tons per 24 hours × 2 units) 36,650 kW (rated)

for waste treatment, including municipal solid waste, at facilities such as this one. Durable plants that can operate at high efficiency in a stable manner over the long term are essential in order to improve the profitability of revenue such as processing fees and power sales when such plants are operated as a business, and this facility has earned high praise in this regard.



Message



Yasuo Takamatsu

Deputy Executive Manager
International Division
Takuma Co., Ltd.

The eight boilers we have delivered to Kenana Sugar continue to operate today, close to 40 years after the first units were delivered. Ten years has passed since we delivered the facility we completed in 2010 for Lakeside EfW, and that plant, too, continues to operate smoothly and earn high praise from the customer as Europe's No. 1 EfW plant. Our products contribute to our customers' businesses and to society by operating in a stable manner over the long term, and their performance is our greatest pride. Although the overseas business poses unique challenges that must be met before a plant can be delivered, I look forward to continuing our initiatives in this area as a bridge to the future, based on the willingness to embrace difficult challenges that we inherit from those who came before us and the experience we have accumulated to date.

Main Recent Projects

The following are the main plants supplied by Takuma during FY2019.

Municipal Solid Waste Treatment Plant Business

Primary equipment improvements



Yamaguchi City Incineration Plant

Project name

Yamaguchi City Incineration Plant
Primary Equipment Improvement Project

Capacity

Incineration facility: 220 tons per day (110 tons per 24 hours × 2 units)
Power output: 3,600 kW

Location

Yamaguchi Prefecture



Uji City Higashiuji Sewage Treatment Plant

Project name

Uji City Higashiuji Sewage Treatment Plant
Water Treatment Equipment Project No. 17

Equipment capacity and specifications

Project overview: Modification to early sedimentation, reaction tank, final sedimentation, disinfection, and water equipment
Capacity treatment volume: 3,650 m³ per day
Treatment method:
Biological nitrogen removal with agglomerating agent
Specifications: Aeration system, sludge scraper, etc.

Location

Kyoto Prefecture



Osaka City Hokko Landfill site

Project name

Hokko Landfill site
Wastewater Treatment Facility
Restoration Work (Phase 2)

Equipment capacity and specifications

Project overview: Work to restore operation to a wastewater treatment facility that was damaged by Typhoon 21 in September 2018
Capacity treatment volume: 3,000 m³ per hour
Treatment method:
Coagulating sedimentation
Specifications: Turbid water treatment system

Location

Osaka Prefecture



Kochi Prefecture Urado Bay Eastern Basin Takasu Sewage Treatment Plant

Project name

Urado Bay Eastern Basin Takasu Sewage Treatment Plant
Sludge Treatment System Construction Part 15

Equipment capacity and specifications

Project overview: Dehydrator expansion work
Type: Pressurized screw press dehydrator
Treatment capacity: 225 kg-DS per hour

Location

Kochi Prefecture

Water Treatment Plant Business



Tokyo Kasai Water Reclamation Center

Project name

Tokyo Kasai Water Reclamation Center Sludge Concentration Tank No. 4
Machinery and Equipment Improvement Project

Equipment capacity and specifications

Project overview: Update work on a sludge scraper
Type: Center-drive post type
Capacity: $\phi 28,000$ mm × 1 unit

Location

Tokyo

Energy Plant Business



CEPO Handa Biomass Power Co., Ltd.

Project name

CEPO Handa Biomass Power Plant
Construction Project

Equipment capacity and specifications

Fuel: PKS, wood fuel
Steam conditions (normal operation):
190 tons per hour × 6.2 MPaG × 480°C
Power output: 50,000 kW

Location

Aichi Prefecture



SALA e POWER Co., Ltd.

Project name

SALA e POWER
Biomass Power Plant Construction Project

Equipment capacity and specifications

Fuel: PKS, wood fuel, wood pellets
Steam conditions (normal operation):
85 tons per hour × 6.0 MPaG × 480°C
Power output: 22,100 kW

Location

Aichi Prefecture



Aoki Environmental Enterprise Co., Ltd.

Project name

Waste Incineration Power Plant
Construction Project

Equipment capacity and specifications

Treated waste type: Industrial waste
Treatment capacity: 93.6 tons per day
Power output: 1,050 kW

Location

Niigata Prefecture



SARA Inc.

Project name

Waste Gas Purification System
Installation Project

Equipment capacity and specifications

Equipment overview: Equipment to supply CO₂
Waste gas source: Incineration waste gas from biomass power plant
CO₂ supply volume: 2,750 kg of CO₂ per hour

Location

Okayama Prefecture

Hayashi Plywood Industrial Co., Ltd.

Project name

Biomass Power Plant Construction Project

Equipment capacity and specifications

Fuel: Wood fuel
Steam conditions (normal operation):
31 tons per hour × 5.98 MPaG × 415°C
Power output: 6,800 kW

Location

Kyoto Prefecture