

# CYBER WORLD



Feature

## The Energy Industry and Machine Tools

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2018

No. 55



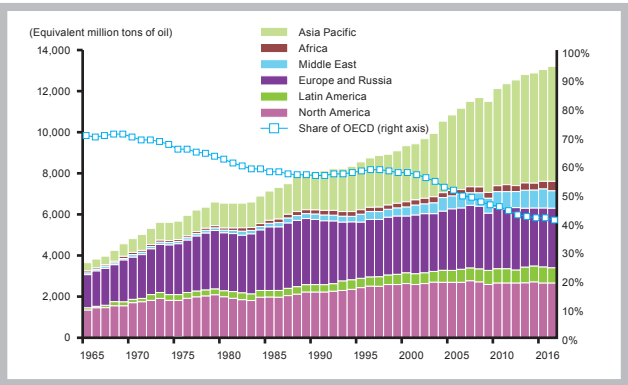


# THE ENERGY INDUSTRY

## The Energy Industry and Machine Tools

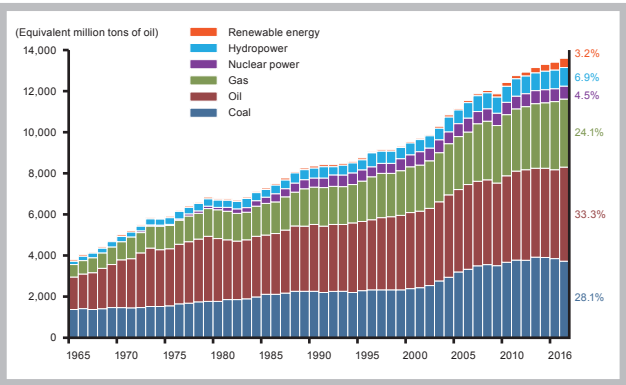
Our lives depend on oil and other energy resources in the forms of electricity supplied to homes, gasoline that fuels cars, and many others. The amount of energy resources consumed in the world reaches the equivalent of 13 billion tons of oil each year, having increased threefold over the last 50 years. It is also forecast that energy consumption will continue to grow in line with the development of the global economy.

Changes in energy consumption by region



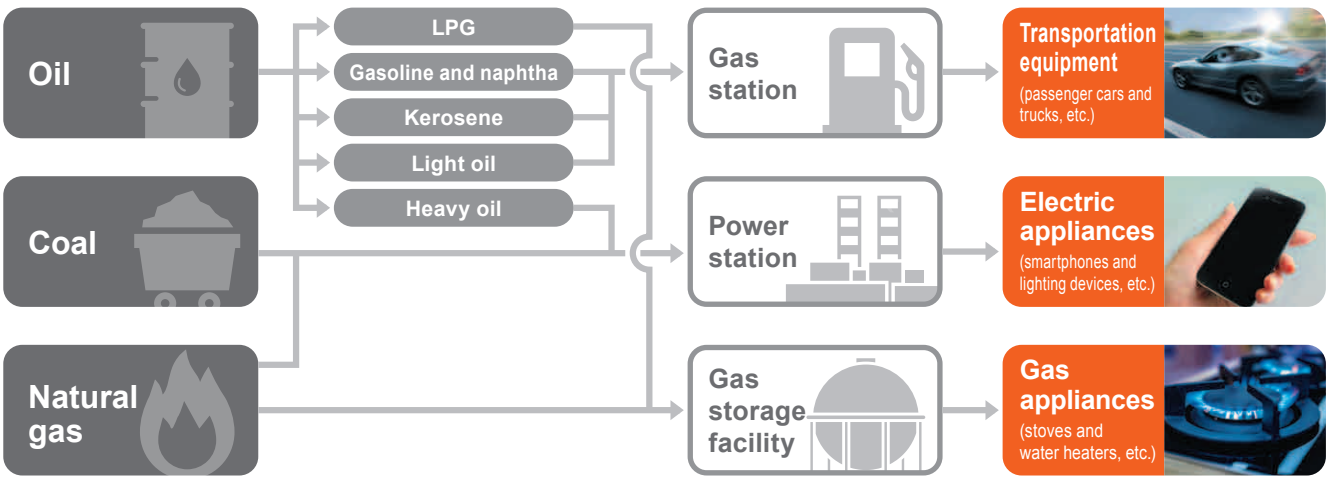
Source: Energy White Paper, Agency for Natural Resources and Energy

Changes in energy consumption by type



Source: Energy White Paper, Agency for Natural Resources and Energy

Types and main uses of fossil energy



### Growing demand for fossil energy

Energy resources are essential for economic activities. Since the start of the 21st century, Asia has become the largest consuming region, surpassing Europe and the US. Many cities in China and other Asian countries have turned into industrial towns with increasing populations and increased energy consumption. In Asia, which is now estimated to account for 60% of the world GDP growth, a cycle has been established in which high economic growth leads to the improvement of living standards and population growth which further increases energy demand. 40% of the energy resources produced across the world are consumed in Asia at present, and the percentage will be even higher in the future.

Growth in energy consumption in association with economic development in Asia is further increasing demand for fossil fuels such as oil, coal and natural gas. Many Asian countries highly depend on thermal power generation in their power source composition and the existence of cheap and readily available

fossil fuels is considered to be an essential condition for their future economic growth. With such large demand for fossil fuels mainly in Asia, the percentage of fossil fuels in all energy consumption in the world continues to be high. Even in 2030, when the development of renewable energy is expected to have progressed, the percentage will be around 80% without a dramatic decrease according to estimates.

While the demand for fossil fuels remains at a high level, stable supply of fossil fuels is a common challenge for all countries. Accordingly, the development of fossil fuels, which is mainly from oilfields and coal mines, as well as the establishment of an energy supply chain for fossil fuels, is underway in various parts of the world.



Oil field development



① Exploration and test drilling

Conduct a geological survey to analyze the distribution and reserves of oil



② Drilling

Build a derrick and drill to the layer with oil reserves



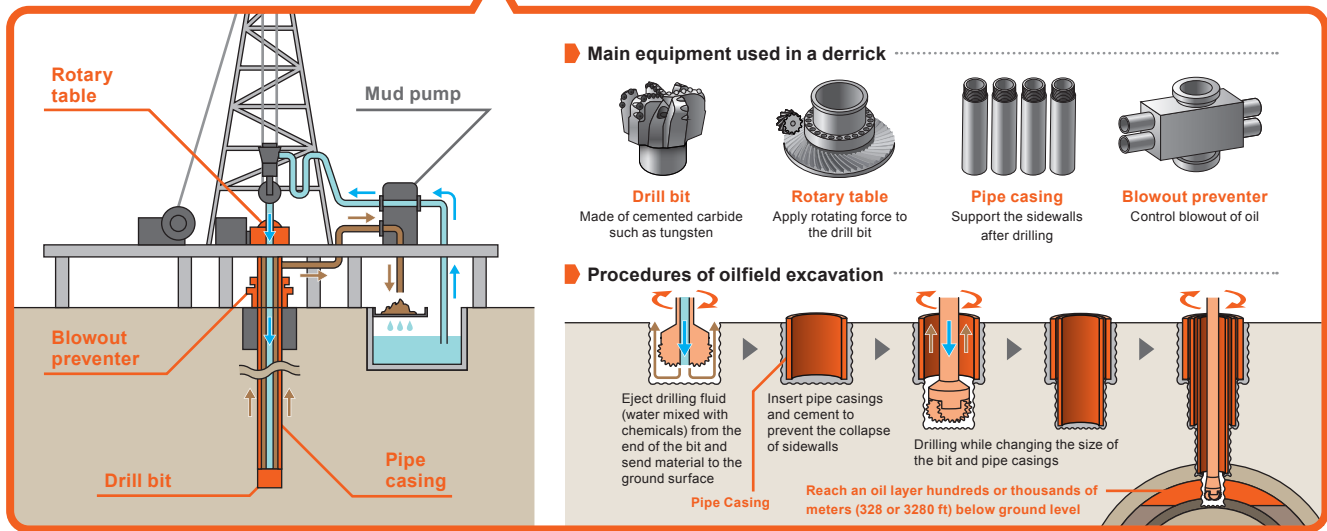
③ Pumping

Pump oil to the surface with a sucker rod pump, etc.



④ Separation

Separate impurities and gas from pumped oil with a separator



Process of oilfield development

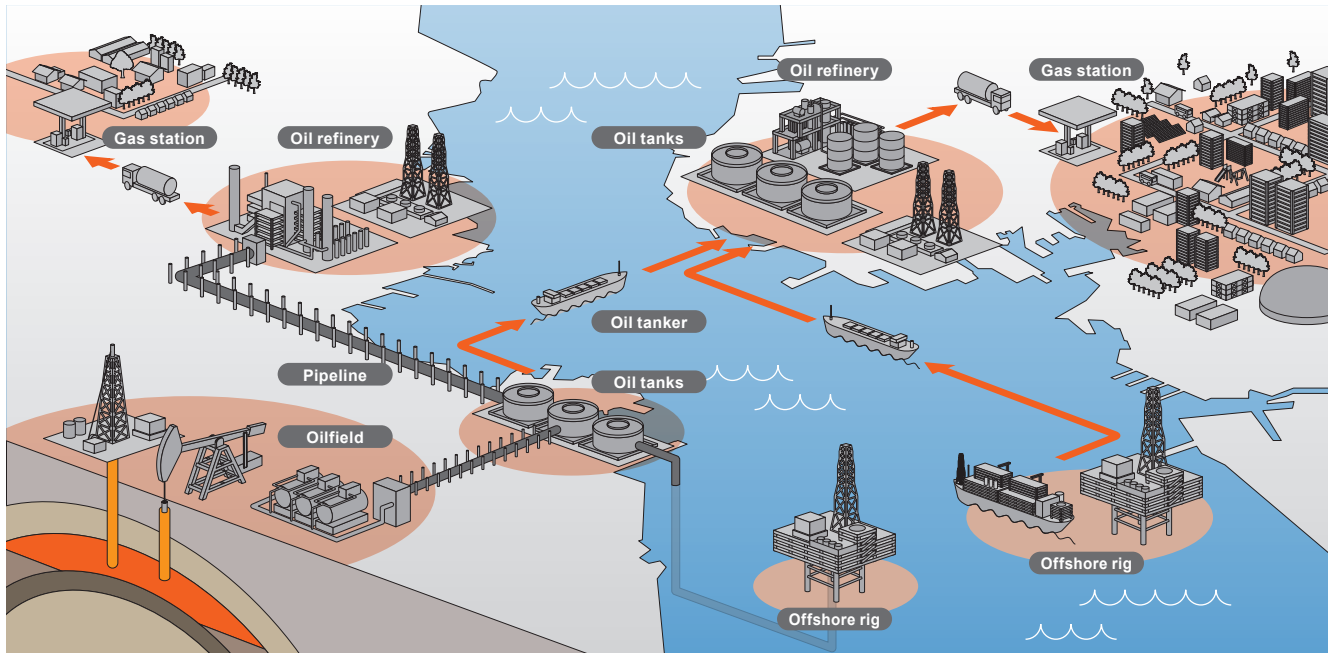
Driven by strong demand for energy, oilfield development is underway in various parts of the world. The total number of onshore and offshore oilfields in the world is tens of thousands. Such a large number of oilfields include ultra-deep oilfields that are excavated to 12,000 meters (39370 ft) deep, which produce oil from a stratum whose depth exceeds the height of Mount Everest, the world's highest mountain.

The process of oilfield development roughly consists of four steps: (1) exploration and test drilling, (2) excavation, (3) pumping and (4) separation, which take place in this order. As shown in the figure above, a geological survey is conducted first to analyze oil distribution and reserves, followed by test drilling to calculate recoverable reserves. After the development is determined to be commercially viable, a derrick is constructed to start excavation. Once the targeted layer is reached, crude oil is pumped with a sucker rod pump, etc. If pumping is difficult due to high viscosity, water or steam is injected to increase the fluidity and recover the oil. Then, after being separated from impurities and gas with a separator, the extracted crude oil is transported through pipelines to an oil tank or a port where ships wait. The

derrick used for the excavation process particularly contains various types of industrial equipment. Typical components of a derrick are a drill bit that drills through hard bedrock, a rotary table that facilitates the rotation of the bit, pipe casings that prevent sidewalls from falling and a blowout preventer that controls the blowout of oil. These various industrial devices support the safe and high-efficiency excavation process.

Excavation and other steps of the oilfield development process have further evolved in recent years, which is significantly changing the global energy scene. An example is a technology to extract shale oil. The extraction of shale oil was realized with the rapid evolution of techniques for excavation in the horizontal direction, fracking of strata, etc. after 2005. While a concern about the depletion of oil and other fossil fuels has often arisen, it is also said that the ratio of reserves to production for crude oil in the world is on the increase thanks to the evolution of techniques for the extraction of crude oil from shale layers among others.

Energy supply chain extended across the world



Industrial equipment coordinated to support the supply chain

Various types of industrial equipment support the supply chain

The crude oil pumped from underground is delivered from producing countries via the energy supply chain extended across the world to consumer countries. The process is supported by a wide range of energy industrial equipment of various sizes.

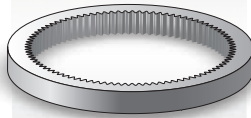
The places where oil can be extracted are unevenly distributed in comparison with other fossil fuels. Accordingly, the delivery from the producing countries to consumer countries involves long-distance transportation. While oil can be delivered by land transportation through pipelines within the same continent, marine transportation by oil tankers is used for delivery to Asian and other countries surrounded by sea. As a result of growing demand for oil in Asia, more than half of the oil produced in the world is transported by ship and a vast number of 300,000 DWT large oil tankers travel on the seas, especially on the Indian Ocean. The oil delivered to consumer countries is temporarily stored in oil stockpiling bases with rows of oil tanks of 100 meters (328 ft) in diameter and then transported to oil refineries where crude oil is refined. Since crude oil is liquid containing various ingredients, they are separated and condensed with distillation equipment in the refinery to turn into heavy oil, light

oil, kerosene, etc. After going through those steps in the energy supply chain, oil can be used as fuel for power stations, factories and automobiles as well as a power source for transportation equipment and many other goods.

As for fossil fuels, while the technology to extract shale oil and shale gas is attracting attention, the evolution of technology for the development process is not the only factor that contributes to the stable supply of fossil fuels. The establishment of the subsequent energy supply chain, as well as the evolution of industrial equipment that supports it, is also considered essential. Achievement of all of them in a sophisticated manner enables the maintenance of a stable energy supply.



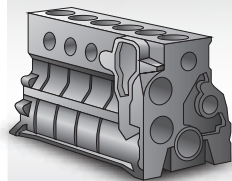
## Various types of oil industry components produced by Mazak machines



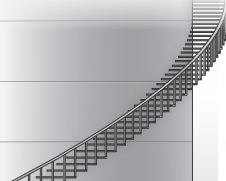
**Rotary frame**  
(mining machine)



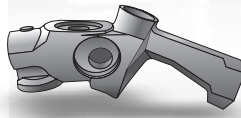
**Drill bit**  
(oil rig)



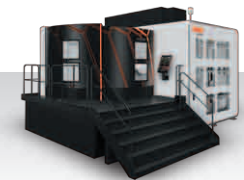
**Cylinder block**  
(ship)



**Stairway**  
(LNG tank)



**Gas stand fueling nozzle**  
(gas station)



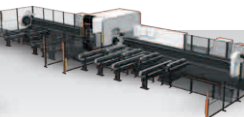
INTEGREX e-1600V/10S



VARIAXIS j-600/5X AM



VERSATECH V-140N



3D FABRI GEAR 400 III



HCN-5000

## Mazak's machine tools support energy industrial equipment

Various industrial equipment that underpin fossil energy development and the energy supply chain are required to endure severe operating environments over a long service life. To this end, such industrial equipment are equipped with a large number of durable, high-precision components and Mazak machine tools are deeply involved in their production process.

In the production of cylindrical parts, heavy-duty cutting of parts for equipment used in oil and gas fields including drill bits, pipe casings, ball valves and blowout preventers is performed by many Mazak machine tools in various corners of the world, such as the "INTEGREX e-H" multi-tasking machine and the "SLANT TURN" CNC turning center. Prismatic parts of various sizes are also machined with high efficiency by our machine tools. For example, the large "VERSATECH" 5-face machining center processes cylinder blocks for marine vessel engines and the "HCN" horizontal machining center processes gearboxes for mining machines and refueling nozzles for gas stations. Recently, our "VARIAXIS j-600/5X AM," hybrid multi-tasking machine which integrates additive manufacturing technology

with machining, has attracted significant attention as a groundbreaking machining solution to extend the life of drill bit tips.

In addition to machine tools, Mazak's laser processing machines are closely engaged in the production of energy industrial equipment. Our 3D laser processing machine "3D FABRI GEAR" is actively used to manufacture frames for photovoltaic power generators and stairways installed on LNG tanks, and helps shorten the production lead time and reduce production cost with the integration of the long pipe cutting process. In this way, various products and machining solutions offered by Mazak contribute to the development of energy exploitation and the energy supply chain through high-efficiency and high-precision machining of components.

## Inabe Plant established to meet growing demand for large machine tools

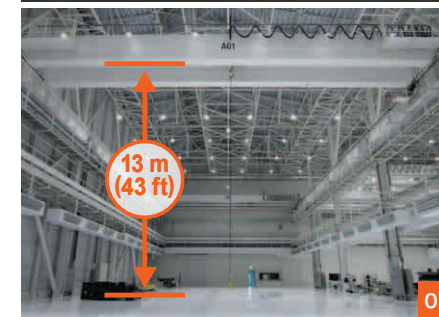
While energy development is underway in various places of the world, energy-related sectors are booming and companies in these sectors are investing in equipment to increase their production. In particular, there is growing demand for machine tools to be used in all sectors of the energy industry.

In response to the growth of demand for machine tools, Mazak established the Inabe Plant as a new production site in Mie Prefecture and started full-scale operation in May 2018.

The Inabe Plant mainly manufactures large machine tools including the VERSATECH and other 5-face machining centers designed for the machining of large parts, as well as the VARIAXIS and other 5-axis machining centers. In addition, the plant has a large machine tool exhibition area, which has been difficult to create in a plant, to propose various solutions for large parts, such as test cuts, tooling and machining verification, to customers.



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- 01. The Inabe Plant, which started full-scale operation in May 2018
- 02. Designed for the assembly of large machine tools with the height under the crane rail 13 m (43 ft)
- 03. Assembly line to produce large machine tools including the VERSATECH and FJV
- 04. Manufacturing Process Solution Center, which exhibits many large machines

## To respond to the further growth of energy demand

In 2050, the global population will reach an estimated 10 billion people and energy consumption in the world is expected to further increase. On the other hand, there is a concern that problems caused by the consumption of fossil fuels such as air pollution are becoming more serious. To address those challenges, investments in renewable energy such as wind power and solar power generation have gained momentum in recent years. The annual amount invested in renewable energy in the world is estimated to be 250 billion dollars at present, which is roughly twice as much as the amount invested in thermal power generation. Some major resource companies are decreasing the ratio of investments in the development of fossil fuels. In Europe, as exemplified by the declaration of a policy to abolish the use of coal-fired power

generation in some countries, the trend of de-carbonization has been accelerated, triggered by the Paris Agreement, a framework to address global warming. The environment surrounding energy is thus changing dramatically on a global scale, and technological innovations are demanded for the widespread use of next-generation energy as well as for the strengthening of the existing fossil fuels development.

Energy is consumed in every aspect of our daily lives. Behind it, related industries are making continuous efforts for the stable supply of energy. Mazak will continue to contribute to the development of energy-related industries and the realization of an advanced society based on such development through the supply of cutting-edge machine tools and machining technologies.





## Customer Report 01

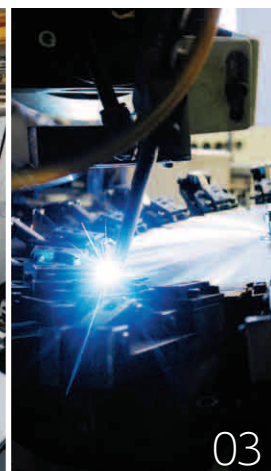
### Building a top position in Japan's diamond tool market

Japan ICHIKAWA SEIKI CORPORATION

A diamond cutter is an essential tool on construction and civil engineering sites. Much of the work to develop and maintain today's infrastructure starts when this sharp tool hits bedrock and then burrows its way deep. The leading company in the production of diamond tools is ICHIKAWA SEIKI CORPORATION, which manufactures more than 70% of the diamond tools supplied to the construction and civil engineering industries in Japan. Since its establishment, the company has been committed to developing a customer-oriented business under the philosophy of "using human resource capabilities, technical capabilities and equipment capabilities to the fullest extent," according to Mr. Toru Suzuki, President, with focus on the two pillars of civil engineering products and precision machined parts.



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- 01. INTEGREX i-500, the latest multi-tasking machine, was recently installed
- 02. More than 50 Mazak machines of various types including multi-tasking machines have been installed
- 03. Laser welding technology for the tips of diamond cutters is an advantage of the company
- 04. Mr. Toru Suzuki, President (center), Mr. Shinichi Ichikawa, Director and Senior Advisor (third from right, front row) and employees

## COMPANY PROFILE



### ICHIKAWA SEIKI CORPORATION

President and Director : Toru Suzuki  
Address : 2018-1 Kitanagaikae, Nagano City, Nagano  
Number of employees : 52  
www.ichikawaseiki.co.jp



The dominant share of ICHIKAWA SEIKI in the market of diamond tools for construction and civil engineering industries is based on its advanced technical capabilities. In the era when silver soldering was still commonly used to join blades to the tool base materials, the company adopted laser welding ahead of other companies. Laser welding immediately gained credibility in the market because while the edge of the blade joined by silver soldering was detached due to the heat generated during high-speed rotation, the blade joined by laser welding stayed on the tool.



Mr. Suzuki, President (left), talking about the new management strategy and Mr. Ichikawa, Director and Senior Advisor

The history of ICHIKAWA SEIKI dates back to 1972 when Mr. Shinichi Ichikawa, current Director and Senior Advisor, founded a business in Nagano, his hometown, after learning silver soldering expertise in Tokyo. A limited company was established in 1975 and then reorganized into a stock company in 1982. When planning to introduce equipment for a shift from silver soldering to laser welding, which was a turning point for its business, Mr. Ichikawa consulted with the late Teruyuki Yamazaki, former Chairman and CEO of Yamazaki Mazak. "Mr. Yamazaki introduced a US company dealing in laser oscillators to me and Mazak also manufactured a custom-built machine equipped with a laser oscillator to perform welding for our company. While our relationship with Mazak started when we purchased the Oil Country\* lathe for pipe machining soon after our establishment, I will never forget his kindness about laser welding. I am determined to use only Mazak machines as long as I live," said Mr. Ichikawa. Now various Mazak machines, whose total number exceeds 50, are playing active roles in the plants of ICHIKAWA SEIKI.

\* Oil Country is an engine lathe for machining pipe materials such as oil well pipes, which was marketed by Mazak in the 1970s

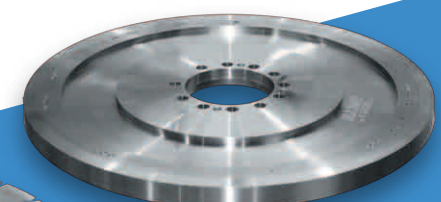
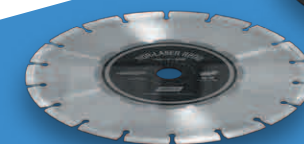
### Decided to purchase the first INTEGREX i-500 in Japan at first sight

Machining of precision parts, which are the core products of ICHIKAWA SEIKI along with civil engineering products, is also the area supported by a large number of Mazak machines. "Mazak machines, including individual units and their systems, are always full of new ideas. That is exactly why it is worth introducing them. We can demonstrate that we do good jobs for customers by introducing new equipment. In fact, not just a few customers mention that they look forward to the introduction of new Mazak machines." To meet such an expectation, ICHIKAWA SEIKI introduced the INTEGREX i-500 multi-tasking machine, which was the first one installed in Japan, in July 2018. "When I saw the actual machine, which was released as a new model last year, in a Mazak showroom, I ordered the machine on the spot because I was looking for a model that could fill the gap between the INTEGREX e-H series and the i-400. I thought that the i-500 is best for large-diameter machining of parts such as electrodeposited wheels and aluminum wheels. The machine is also useful for machining workpieces of around Φ600 mm in diameter, which helped to recently increase the number of orders we receive. The operation has been smooth since the installation. It is also good that young people can easily use the intuitive Mazatrol touchscreen as if they were handling a smartphone." Mr. Suzuki, President, evaluated the



The introduction of the INTEGREX i-500 had a larger effect than expected

A core drill (left) and a diamond cutter (second from left), which are packed with ICHIKAWA SEIKI unique technologies, as well as precision machined parts



effect of the INTEGREX i-500. He estimates that productivity has been tripled since its introduction.

### 3-year training with general-purpose machines to improve technical capabilities

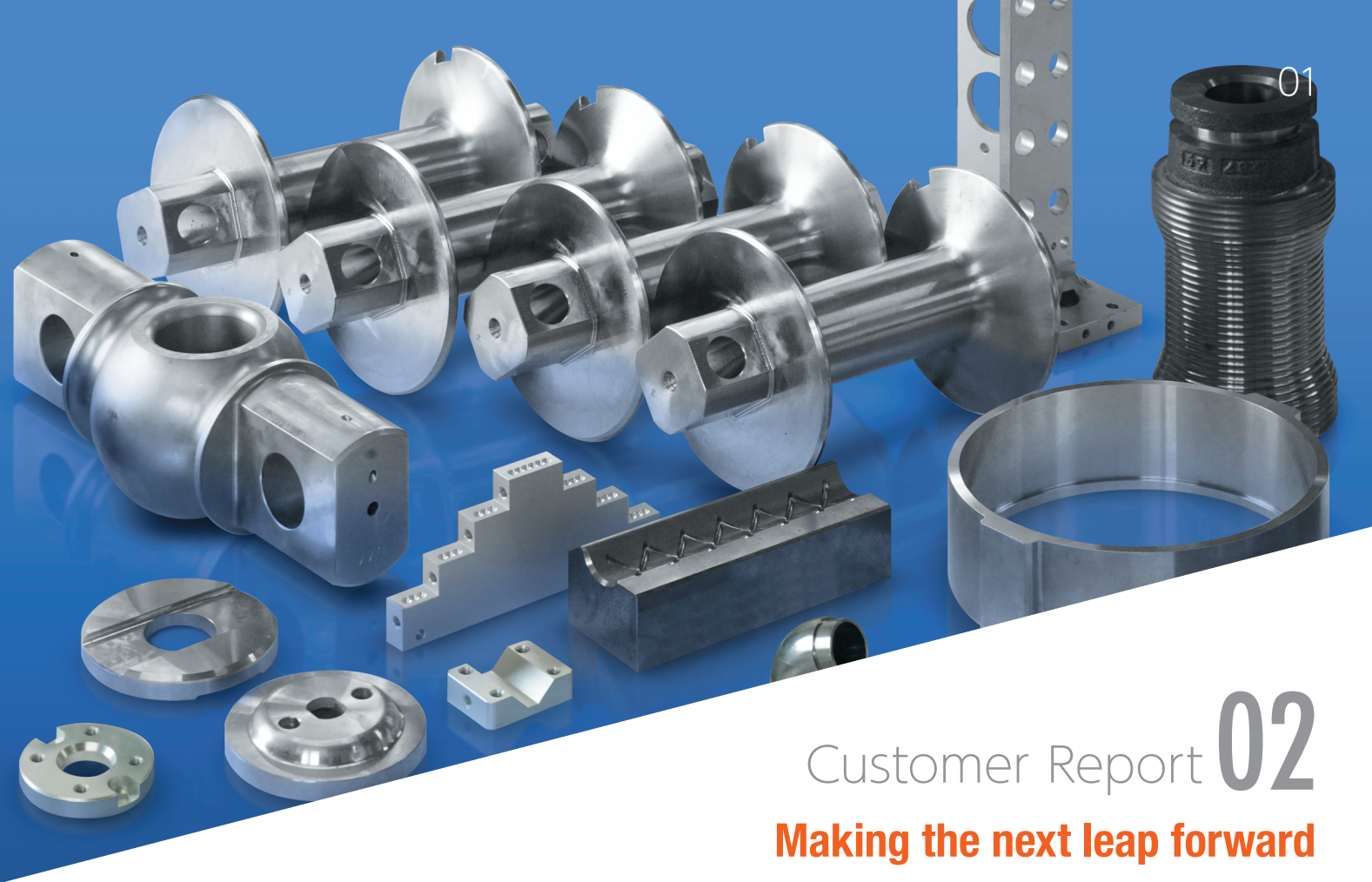
While ICHIKAWA SEIKI installed the Oil Country engine lathe, the first Mazak machine tool for the company, for thin-wall machining of pipes nearly 50 years ago, the lathe is used for production every day and also for the training of new employees. New employees in the company receive training with general-purpose machines for three years after joining before learning NC machines and then acquire practical skills thoroughly through on-the-job training. This approach is utilized because "good production skills cannot be realized until essential basic knowledge and ideas have been firmly acquired even if the machines and tools are excellent," according to Mr. Ichikawa.



The Mazak Oil Country engine lathe is still operated every day

The human resource capabilities and technical capabilities, which are mentioned in the philosophy of ICHIKAWA SEIKI, are cultivated as mentioned above. In the meantime, equipment capabilities, the remaining component of the philosophy, are the responsibility of Mazak and other industrial equipment manufacturers. "We introduced not only machines but also management expertise from Mazak," Mr. Ichikawa mentioned about the relationship with Mazak up to the present. ICHIKAWA SEIKI and Mazak will continue to work together to further improve equipment capabilities.





## Customer Report 02

### Making the next leap forward

Japan MARUESU-KIKOU Co., Ltd.

The Shinkansen (bullet trains), elevators, multistory warehouses and industrial robots are some of the various products using components manufactured by MARUESU-KIKOU to literally move the world. The company offers a variety of products ranging from thumb-sized items to products of more than 5 meters (16 ft) long, and also handles various materials including steel, aluminum and stainless steel to respond to customer demands. Taking advantage of abilities to manufacture products in an integrated manner through the whole process from parts machining to assembly, MARUESU-KIKOU has brought its original centrifugal separator to the market, which is based on its technical capabilities that have been developed since its establishment.



01. One of the advantages of MARUESU-KIKOU is the ability to machine a wide range of components  
 02. Mazak machines of various sizes have been installed as part of the aggressive investment in equipment  
 03. Automation systems have been actively introduced for the production line of axle components for the Shinkansen  
 04. Mr. Yasuyuki Mizuno, President (fourth from left, front row), Mr. Masanao Mizuno, Senior Managing Director (fifth from left, front row) and employees



## COMPANY PROFILE



### MARUESU-KIKOU Co., Ltd.

President & Director : Yasuyuki Mizuno  
 Address : 347-17 Aza-Nomoto, Shimozue, Komaki-City, Aichi  
 Number of employees : 52  
[www.maruesu-kikou.co.jp](http://www.maruesu-kikou.co.jp)



Mizuno Tekkosho, the predecessor company of MARUESU-KIKOU, was established by the father of Mr. Yasuyuki Mizuno, President in 1961. "My father liked playing with machines better than agriculture, which was the family business, and founded the company with a belt-driven lathe and shaper," said Mr. Mizuno. The company steadily expanded the business with a focus on machining of parts for freezers and automobiles and purchased three general-purpose lathes for machining shafts as the first Mazak machines for the company in 1966. As the company was located near Mazak and the founder, who was familiar with machines, depended on Mazak, the two companies developed a mutual relationship.

Then, when Mizuno Tekkosho installed an additional three Mazak machines including an NC turning center with distance between centers of 3 m (118 in.) , the company entered the field of machining large parts with a focus on components for industrial machines. In 1984, MARUESU-KIKOU was established. "We also started to handle other processes such as welding and assembly with the construction of our second plant in 1992 and set up a system handling everything from the input of raw materials to shipment, which is now our strength," Mr. Mizuno reflected.



Mr. Yasuyuki Mizuno, President (left), and Mr. Masanao Mizuno, Senior Managing Director

In 2017, MARUESU-KIKOU founded Maruesu Vietnam (Vietnam Plant), its first overseas production site, to machine parts of industrial machines. "The site is working to manufacture parts with the same level of quality as products in Japan at the initiative of the local employees who were trained in our company." The company's production and supply system has been further stabilized by having another production site abroad.

### Comprehensive accumulation of technologies to produce various parts

The technical capabilities of MARUESU-KIKOU have been cultivated based on its philosophy to constantly adopt new technologies and take on any challenges aggressively, which has been inherited since its establishment. As a result, the company can undertake the production of all necessary parts for a whole unit in its main business of parts production for industrial machines, according to Mr. Mizuno. For example, it manufactures parts for axles used in the Shinkansen and the New York subway, which require especially high levels of accuracy, speed and safety because they are core components of trains that transport people at a high speed and can affect the lives of many people. The comprehensive accumulation of technologies allows MARUESU-KIKOU to meet these needs.



Once they are used to the ease of operation of the Mazatrol, operators are not satisfied with any other CNC systems

The business that is expected to play a pivotal role in MARUESU-KIKOU in the future, following the current core business of manufacturing mechanical parts for various industries, is the manufacturing of centrifugal separators. This device uses centrifugal force to separate substances that differ in their specific gravity. The company had the first opportunity to handle this device when it received an order from a sales company to improve a conventional centrifugal separator. The former president developed and completed a new centrifugal separator based on his experience and ingenuity. MARUESU-KIKOU has patented the excellent technology employed in the new separator and used it for filtration separation and collection of sludge in wastewater from glass polishing. "In addition to the high precision developed through

- Fully automatic centrifugal separator "MG Series" (right), which was created by the technical capabilities of the company. Comparison of before and after filtration separation with the device:



## Customer Report 02

Japan MARUESU-KIKOU Co., Ltd.

our experience in parts machining, our abilities to respond to customization such as modification of specifications in accordance with the substances to be separated are also highly valued." Mr. Masanao Mizuno, Senior Managing Director analyzed the strength of their products. The company's centrifugal separators have won the trust of customers due to the design and production that can meet their demands, and are used actively in food, semiconductor and various other industries.

### A growing vision to build a network with Vietnam

The father of Mr. Yasuyuki Mizuno preferred Mazak machines from the early years and MARUESU-KIKOU currently owns 35 Mazak machines in total. As the core equipment for the company, they are used for most of the machining operations. The Vietnam Plant, its first overseas site, is also equipped with six Mazak machines as the main machines.

"The Mazak machines we have introduced, including CNC turning centers and machining centers, are highly suitable for manufacturing of products in our company, which include many single items. The machining accuracy, as well as application support, is just what we need. We are also satisfied with the after-sales service and other thorough support," said Mr. Yasuyuki Mizuno.



Mr. Mizuno, President, has high expectations for the Vietnam Plant

MARUESU-KIKOU plans to connect its headquarters with the Vietnam Plant via a network to use data beyond the national boundary. "Rather than one-way communication from Japan to Vietnam, I want to establish manufacturing with the world via Vietnam." With the technical capabilities cultivated through the manufacturing of parts for industrial machines and the integrated production system, the company will continue to make a leap forward.







01

# Customer Report 03

## Supporting fire-fighting around the world

 France POK SAS

Based in Nogent-sur-Seine, which is located about one hour by train from Paris, POK is a leading manufacturer of fire-fighting equipment in Europe. It manufactures hand nozzles and other water discharge devices as well as fire-fighting hose reels, which are delivered to fire stations and other customers in various fields such as oil refineries, airport facilities and marine vessels. To meet the demand for fire-fighting equipment, the company continuously works to improve existing products and develop new products. For its performance for more than 40 years of operation and providing reliable products based on strict quality control, POK has earned great trust from customers all over the world.



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- 01. POK fire-fighting hand nozzle, which is renowned for its robustness
- 02. Automation system reduced set-up time by 30%
- 03. Water discharge test to strictly check the flow rate, distance, water pressure, etc.
- 04. Mr. Brochot, General Director of Production (right, first row), and employees

### COMPANY PROFILE



**POK SAS**  
 President : Bruno Grandpierre  
 Managing Director : Alexandra Grandpierre  
 Address : 18 Cours Antoine Lavoisier, 10400 Nogent-sur-Seine, France  
 Number of employees : 120  
 www.pok-fire.com



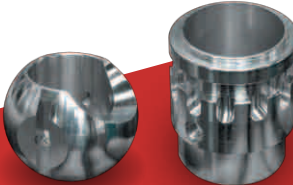
POK was founded by Mr. Bruno Grandpierre, President, who was then a fluid engineer, as the first fire-fighting equipment manufacturer in France in 1976. Launched with six employees in a suburb of Paris, the company developed the market and started to export products to dramatically expand its business. The POK Group as a whole currently has 120 employees in total and an integrated system that handles all processes from development to manufacturing and sales. The strengths of POK are an overwhelming selection of products that outpaces competitors and a system to deliver products quickly. The company offers as many as 4,500 types of products for marine, wild land and various other uses with different specifications such as water pressure and flow rate. In addition, 44,000 spare parts and 1,500 finished products are constantly stored to ensure that any required parts can be shipped immediately at the request of customers. For this reason, quick delivery is assured with the supply of diversified products and service stock.



Programs are shared for flexible responses to the production plan

of 24 Mazak machines, including those manufactured in the UK, are active in the plants of POK at present. "The ease of operation of Mazatrol was key to the decision. By using machines of a single company, we can share the programs and also perform maintenance more efficiently. Production flexibility has also been enhanced by having multiple Mazak machines of the same model because parts of the same type can be machined by other machines promptly," Mr. Brochot reflected on the background of the replacement of all equipment with Mazak machine tools. In 2015, POK introduced three QUICK TURN NEXUS 250-II M CNC turning centers equipped with an automation system supplied by the UK. "The automation system for the Mazak machines saves space, which is helpful. The shape of the robot base makes the interior of the machine easily accessible and allows the operator to expand the handling range. In addition, teaching is not necessary for the robot. With the introduction of the automation system, the time for programming and setup was reduced by 30% overall," Mr. Brochot explained the merit of the introduction of Mazak machines. POK has also improved productivity with the use of various automation systems from Mazak such as gantry loaders and bar feeders.

High precision aluminum components produced by a Mazak machine tool



### New solutions through product development

The products of POK are used under special circumstances as they are used for fire-fighting purposes to save lives. Accordingly, it is necessary to constantly develop new models in line with technological evolution. Demand for remote-controlled fire-fighting equipment has grown in recent years to reduce safety risks for fire-fighters. POK launched a project to meet the demand in 2016 and developed and put "JUPITER" on the market, the first product from the project. This product has been patented and development is still continuing. The company constantly makes proposals on new solutions to customers through the development of new products based on its advanced technological capabilities.



Mr. Grandpierre, President, with JUPITER, a remote-controlled fire-fighting system

In the meantime, Dr. Alexandra Grandpierre, Managing Director, who had studied and worked in the US, the UK and Germany, has further promoted the overseas business. Overseas sales now account for 60% of the total sales and products are exported to 90 countries. Through the adoption of new technologies, constant improvement of existing products and development of new products, POK will continue to support fire-fighting activities across the globe.



Water cannon with water flowrate of 2,000 liters (528 gal.) per minute



# MAZAK PEOPLE

Yamazaki Mazak U.K. Ltd.  
General Sales Manager for the southern region of the UK

 **Mr. Jason Butler**

## My motto: always listen to your customer's needs

Yamazaki Mazak operates many bases in Japan and other countries for various functions such as production, sales and before and after-sales service and support. MAZAK PEOPLE introduces employees who are active at the forefront of the Group companies.

This issue features Mr. Jason Butler, who works in sales management in Yamazaki Mazak U.K. (YMUK). Leading a team of four sales managers, he also plays an active role as a member of the top sales team.

### PROFILE » Mr. Jason Butler

Mr. Butler joined YMUK as Sales Manager in 2003 and was appointed as General Sales Manager for the southern region of the United Kingdom in 2014. He has also been in charge of transactions with the McLaren Formula One team for many years, with which Mazak has a contract to serve as an official supplier.

### —What customers are you in charge of?

In my job I cover a vast and varied range of market sectors, such as sub-contract, oil&gas, aerospace, medical, energy, die & mold and marine. We work extremely well together and are driven by offering the correct manufacturing solution to meet our customer's needs and ensure they can achieve the best return on investment.

### —What do you value in your sales activities?

My motto is to always listen to your customer's needs. Most people think selling is all about talking, but the most effective salespeople know that listening is the most important part of our job. This is how we really get to the details of our customers' needs and are able to propose the best manufacturing solution. Honesty and transparency are also fundamental traits to a successful sales role. I don't only work for Mazak, I work for our customer base.



The best solution is obtained from dialogues with the customer

### —What do you keep in mind as a manager?

The basis of management is to trust team members. So, I try to transfer authority as much as possible to help each member make their own decisions. Of course, if they cannot solve a problem independently, we talk together and examine it as a team. Mutual cooperation is essential for the success of each member. A key part of my job is to offer on-going and continued support, not only to the Area Sales Managers but also to the large Southern customer base. I am a firm believer that the salesman sells the first machine, and that the continued on going support provides repeat

business. With the right level of partnership, the future opportunities are endless and as our customer's business grows, the Mazak partnership also strengthens.

### —What is the strength of YMUK?

I think that it is the attitude to always provide consultation on any issues relating to the introduction of equipment. Customers are not just purchasing machine tools but they are buying the Mazak brand or even the company. The decision of whether to buy a machine tool or not by customers depends not only on the evaluation of the product. Meticulous support services such as proposals of machining applications and the selection of tools are also a crucial factors. The ability to provide before-sales and after-sales support in a comprehensive manner is a major strength of the Mazak Group including YMUK.

"I really enjoy the current role and am also learning many things from the experience of various challenges. One thing I really respect about Mazak is the opportunities they provide-if you want to progress then you can do this and achieve your goals." said Mr. Butler about the favorable working environment. In the future, he aims to take an even broader management role to cover not only the UK but Europe as a whole.

How he spends his days off

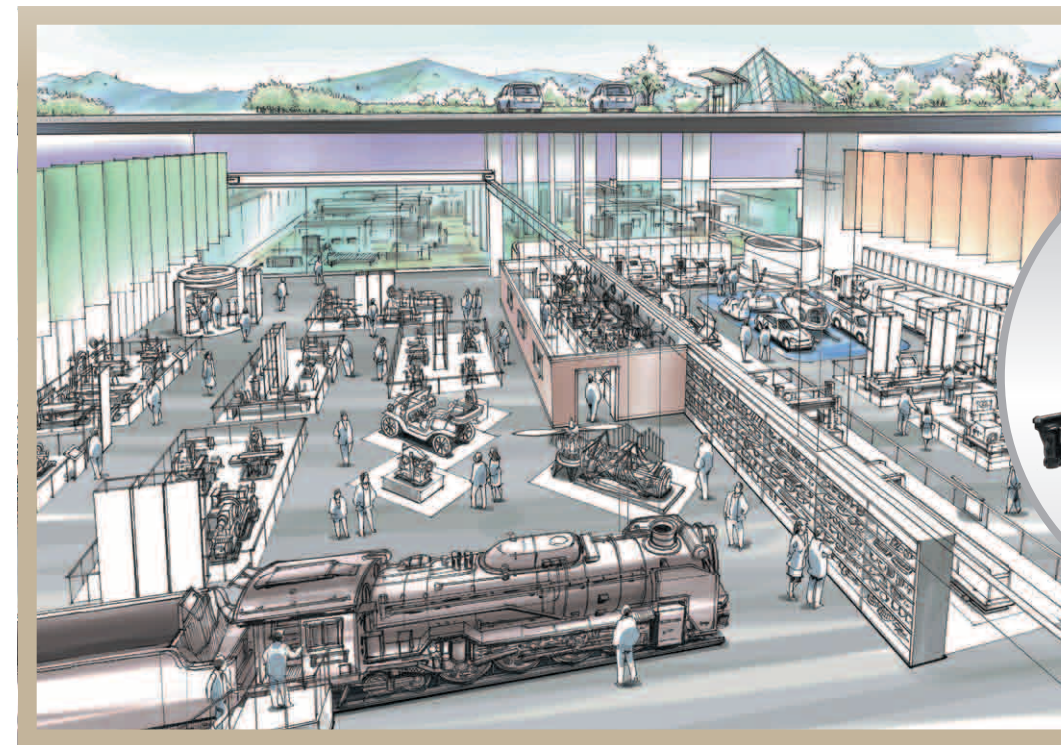
I like cycling on nature-rich countryside roads. I also participate in charity races to raise money, like for example the London to Paris Race that took 3days. Although I want to go road biking every weekend, it is also important to spend time with my family. Balance is the key to both work and hobby.



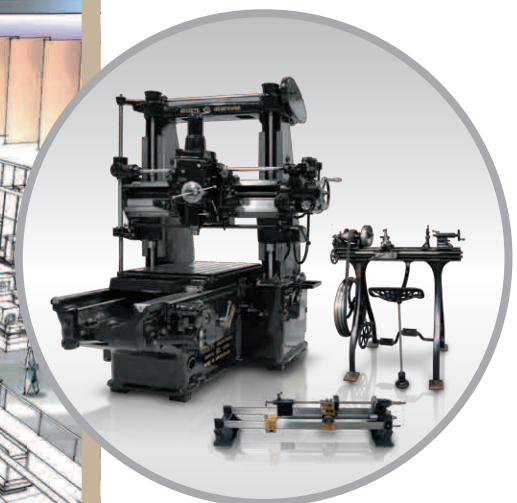
## News & Topics

### The Yamazaki Mazak Museum of Machine Tools opens in the autumn of 2019 — a project to commemorate Yamazaki Mazak's 100th anniversary

Mazak will open the Yamazaki Mazak Museum of Machine Tools in Minokamo City, Gifu and will exhibit traditional machine tools in working conditions, as well as typical industrial products including a steam locomotive, automobiles and aircraft, to clearly introduce the roles of machine tools as "mother machines" and the history of Yamazaki Mazak. Open to the general public, the museum offers hands-on education to the visitors, who can directly see, touch and enjoy the exhibits and learn "manufacturing" and the history of machine tools.



Rendering of the Yamazaki Mazak Museum of Machine Tools

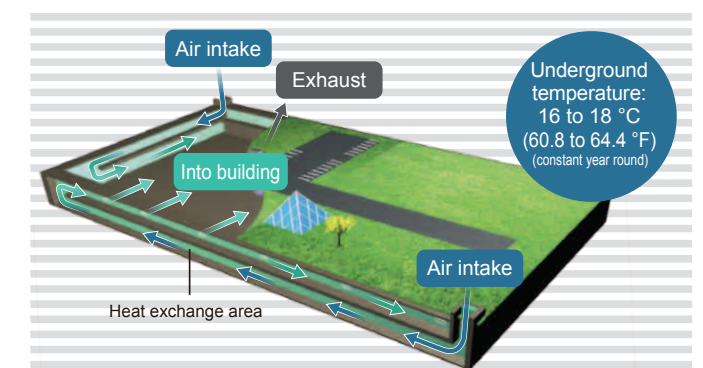


Examples of machine tools to be exhibited

An automatic machining line incorporating IoT technology will also be installed in the museum to machine parts to be used in actual products with modern machine tools. Visitors will see machine tools from the past to the modern day to learn the evolution of machine tools and their innovation.

Located approximately 11 meters (36 ft) deep under the ground, it is an underground museum, which is rare in the world. An "air jacket" of 60 centimeters (23.6") wide, which has an effective overall length of about 600 meters (1969 ft), runs between the museum and underground walls to mix air from the outside with air from the inside to control the temperature inside the factory. The use of geothermal energy, which has a relatively stable temperature throughout the year, for controlling the temperature inside the museum will significantly reduce utility costs in comparison with above-ground facilities. For this reason, the museum is environmentally friendly. Machine tools are called "mother machines" because they are used to create parts that are used to produce other machines, including those that are used in our daily lives. As a leading manufacturer of

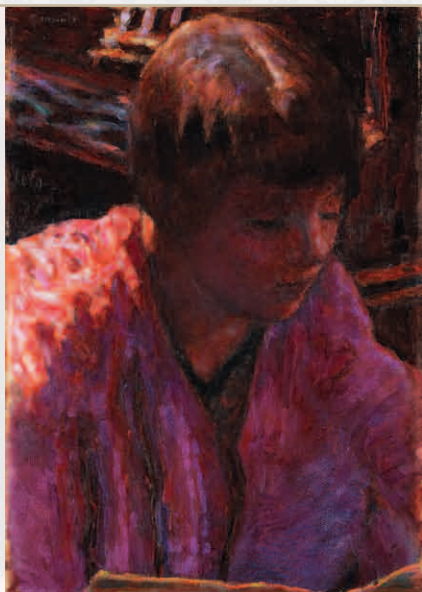
machine tools, Mazak aims to have more people learn about machine tools through the Yamazaki Mazak Museum of Machine Tools, and also to provide a place for the education of children who will lead the next generation, in order to contribute to the development of manufacturing.



Heat exchange system using geothermal energy



The Yamazaki Mazak Museum of Art was opened in April 2010 in Aoi Higashi-ku, the heart of Nagoya in order to contribute to the creation of a rich regional community through art appreciation and, consequently, to the beauty and culture of Japan and the world. The museum possesses and exhibits paintings showing the course of 300 years of French art spanning from the 18th to the 20th centuries collected by museum founder and first museum director Teruyuki Yamazaki (1928 - 2011), as well as Art Nouveau glasswork, furniture, and more. We look forward to seeing you at the museum.



## BONNARD, Pierre "Woman in a Rose Robe"

Collection Showcase 1

THE YAMAZAKI MAZAK MUSEUM OF ART

Bonnard was born in Fontenay-aux-Roses in southeastern France. In 1887, he entered the Académie Julien in Paris, where he met Edouard Vuillard, Maurice Denis, and Paul Sérusier, who later formed the group called the Nabis, a Hebrew word meaning prophet. They did not use the word to suggest a religious idea but to identify themselves as a group of young men capable of foreseeing the future of art. They advanced one of the important artistic movements that followed Impressionism at the turn of the century.

The woman in this painting is Bonnard's wife Marthe. Because of her health problems, the couple left Paris and moved to a rural area with a better climate. Bonnard frequently painted scenes of his wife in a room interior as well as rural landscapes. Bonnard and his closest associate, Vuillard, were called Intimists because of the intimate, introverted mood that infuses their paintings. This appellation referred to their involvement with interiors, inwardness, and familiar spaces. In this painting, a woman wearing a rose-colored robe is shown reading a newspaper in a room. The light on her robe is handled in the manner of Monet while the shadow on her face is painted with a glaze technique resembling that of Renoir. The shadow is infused with intimate sensations.

BONNARD, Pierre [1867-1947] "Woman in a Rose Robe" 1918 Oil on canvas

Collection Showcase 2

THE YAMAZAKI MAZAK MUSEUM OF ART

## GALLÉ, Émile Etched and enameled vase "Eginard and the daughter of the emperor Charlemagne"

This work is an example of Gallé's "historical" style that preceded the arrival of Art Nouveau, and it has a medieval air. The large decorative E that begins the inscription contains the figures of a man and a woman. In the L is the figure of the emperor, Charlemagne (742-814), wearing a crown and holding a scepter and jewel. In the inscription, Charlemagne is spelled "Karles Magne". Eginard (c.770-840) was a historian of the Frankish realm under the Carolingian dynasty. The pupil of Alcuin, an English scholar who became the director of the Palace School at Aachen, he entered the court of Charlemagne and wrote a number of books on politics and diplomacy. His best known work is the Life of Charlemagne. Charlemagne established numerous palaces in addition to the one at Aachen and moved from one to the other. A daughter was born to him while staying in the Ingelheim Palace near Mainz. Her name was Emma, and the emperor assigned his courtier Eginard as her tutor. The two fell in love, although such a union was forbidden. Charlemagne was known for keeping his daughters at his side and not allowing them to marry, and some of them caused scandals by having love affairs without his permission. He eventually became aware of the relationship between Eginard and Emma and banished them, but legend has it that they were finally pardoned and permitted to return to the palace. The couple is represented by the woman sitting on the sofa and the man approaching her inside the letter E.



Eginard(left) and Emma,  
the daughter of the emperor(right)



The emperor Charlemagne



GALLÉ, Émile [1846-1904]  
Etched and enameled vase

"Eginard and the daughter of the emperor Charlemagne" c.1884