

CYBER WORLD

World Parts Center

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Museum of Art

Made by Professionals



2015

No. 45

®



World Parts Center



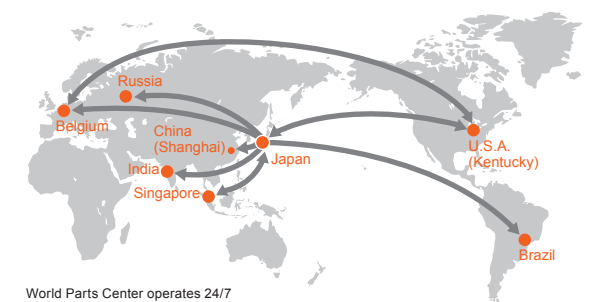
Vertical stocker cranes for medium to large-size parts and a high-speed vertical automatic stocker for small parts

The World Parts Center – the Heart of Mazak's Global Network to Supply Repair Parts to Customers

"When customers operate our machine tools in a smooth manner, their operation is profitable. For this reason, the machines must not stop. If they should stop, we have to do everything to minimize their downtime." This is a basic principle of Yamazaki Mazak regarding service and support for its machine tools and the concept behind the World Parts Center.

The World Parts Center was established in February 2008 and is located on the premises of Minokamo Plant 2. This 10,200 square meter (109,792 ft²) facility has 7 vertical stocker cranes for medium to large-size parts and 8 high-speed vertical automatic stockers for small parts. The World Parts Center stocks approximately 80,000 different spare parts and operates 24/7 to supply parts to customers all over the world.

This facility is the administration center for the Mazak global network to supply repair parts to customers. Parts will be shipped to customers from the parts centers in the United States, Belgium, Singapore, Brazil and Shanghai as well as Japan. More than 95% of spare parts are shipped within 24 hours of receiving the order. As parts are shipped from the global network, the World Parts Center will arrange for replacement parts to ensure that the inventory levels are maintained.



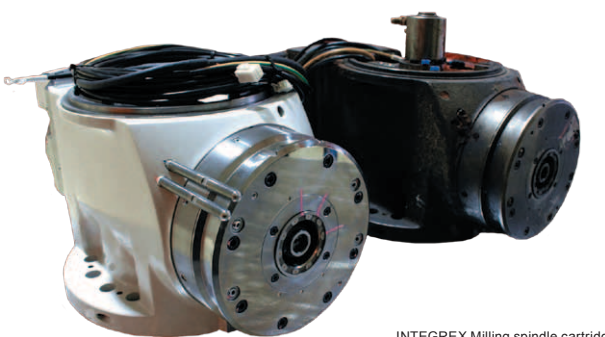
World Parts Center operates 24/7
Parts Centers are located in the U.S., Europe, Singapore and China in addition to the World Parts Center in Japan.



Handling small parts' orders



Milling spindle cartridge on test stand


INTEGREX Milling spindle cartridge
The repaired cartridge (left) appears the same as a new one

Supporting CNC models produced more than 30 years ago

Our prompt delivery rate far exceeds the industry standard and is sustained by the unwritten rule since our start of business that we will support machines we have produced for their lifetime. This is why parts are available for discontinued CNC models that were manufactured more than 30 years ago just as we do for the latest models. Timely delivery of required repair parts minimizes machine down time to ensure that customers can use Mazak machine tools with confidence.

Rebuilding spindles

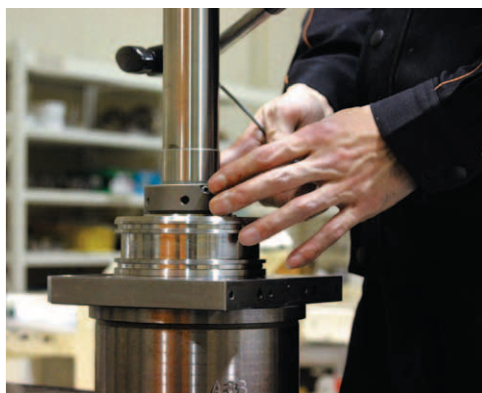
The World Parts Center does not only supply parts but also rebuilds spindle units, which are core machine tool components, for customers in Japan. This also ensures the use of Mazak machine tools with confidence. The Center has a spindle support area, in which skilled technicians rebuild spindle units and then perform a comprehensive operational test on a specially designed test stand. We have established a system making it possible to rebuild any spindle unit, from machine tools produced many years ago to the latest ones. Spindle rebuilding is performed on an exchange basis whenever possible.



Large parts being input to high-speed automatic vertical stockers



Automatic conveyor for fast part handling



Spindle assembly by skilled technician

News & Topics

European Parts Center Expansion in March



High-speed automatic vertical stockers provides improved support to customers in Europe

Just like the World Parts Center, the European Parts Center is an overseas base for supplying repair parts to customers. The European Parts Center was recently expanded and started full-scale operation in March of this year. It utilizes the Mazak Network System, which enables online ordering and inventory checking through coordination with our support bases all over Europe, as well as a fully automated conveyor and loading system. These facilities will strongly contribute to minimizing the downtime of our machines in the field. At the opening ceremony of the European Parts Center, Mr. Takashi Yamazaki, Vice President said, "The state-of-the-art technologies adopted in association with the expansion can dramatically improve our parts supply capacity." Mr. Marcus Burton, European Group Managing Director also stated, "We are committed to offering the highest levels of support for our machines in the field, ensuring that our machine tools and machines provide the best performance."



Renewed Belgium Technology Center showroom



European Parts Center expanded in March 2015



Takashi Yamazaki, Vice President (third from left) and Marcus Burton, European Group Managing Director (second from right) at ribbon cutting ceremony



High Performance On and Off the Track

Mazak and Penske Racing, partners in the pursuit of excellence

Team Penske, owned by Roger Penske, is one of the most successful teams in the history of professional motorsports, with both IndyCar and stock car drivers. And part of what makes the team so triumphant is high-performance Mazak technology.

the 2015 season even stronger. And they are certainly on the right track, with Sprint Cup Series driver Joey Logano winning the 57th running of the Daytona 500 on February 22, 2015.

Over the past two decades, Team Penske has engineered an edge over the competition by keeping more parts manufacturing in-house on equipment supplied by Mazak. Inside Team Penske's state-of-the-art facility on 105 acres in Mooresville, North Carolina, the IndyCar and stock car groups manufacture everything from chassis components to key suspension parts.

Mazak machine tools give Team Penske the process control it needs for consistent part making and fast turnaround times for new design testing. Plus, if a problem arises, the team has quick, easy access to Mazak for expert advice. All of this is important because in any given race several cars have a chance of winning and success or failure is determined by a fraction of a second.

In terms of the Sprint Cup Series, for example, of the 43 cars that qualify for a race, there is maybe a two-tenths-of-a-second difference between the first and last cars and hundredths of a second between the top 20 cars. This is why Sprint Cup Series, as well as Verizon IndyCar Series, drivers strive for even the smallest technological edge, and Team Penske's comes from Mazak.

"When it comes to wins, performance is everything, and that starts with the technology behind the racecar," said Will Power, driver for Team Penske's Verizon IndyCar Series and winner of the 2014 Verizon IndyCar Series Championship.

Overall, the longstanding partnership between Team Penske and Mazak Corporation has proven that man and machine can accomplish truly amazing feats, and that individuals in both racing and manufacturing have a deep dedication for perfection.



Roger Penske (left) touring Mazak Corporation's manufacturing factory

Team Penske and Mazak Corporation have been strong partners since 1994, dating back to when Penske Racing South was established. This past December, Roger Penske and members of his team visited Mazak Corporation headquarters in Florence, Kentucky. They met with company president Brian Papke to discuss further sponsorship opportunities as well as took a tour of the North American Manufacturing Plant.

Roger Penske emailed Brian Papke after the tour, thanking Mazak for its continued support and friendship, as it is what fuels Team Penske's success. He noted 2014 was a terrific year with 22 wins and two championships, and the team is building on that success to make



Roger Penske (left), Brian Papke (right), president of Mazak Corporation



For Team Penske Owner Roger Penske, performance has always been a top priority, and with the help of Mazak's machine technology his racing teams have a better chance of staying ahead of the competition.



Event Report  Taiwan

Demonstration of MAZATROL SmoothX attracted a great deal of attention

The 25th Taipei International Machine Tool Show (TIMTOS 2015), which is the largest machine tool exhibition in Taiwan, was held at four locations, in two Taipei World Trade Center Exhibition Halls, the Nangang Exhibition Hall and the Yuanshan Plaza of Taipei Expo Park. During the six-day period from March 3 to 8, the event with a total of 5,411 booths hosted by 1,015 companies received approximately 47,000 visitors making it the second largest machine tool exhibition in Asia.

In such a successful event, Yamazaki Mazak exhibited two multi-tasking machines, the INTEGREX i-400S and VARIAXIS i-600. The K.O 7, a concept car designed by KEN OKUYAMA DESIGN, was also displayed in the Mazak booth to draw more attention. The presentation stage at the front of the booth introduced the MAZATROL SmoothX CNC and attracted many visitors every day.

Supporting process integration

The Mazak booth was filled with many enthusiastic visitors especially around the MAZATROL SmoothX presentation, as well as the INTEGREX i-400S, which demonstrated machining with the MAZATROL SmoothX. The performance of the MAZATROL SmoothX attracted much attention in Taiwan especially because there are strong aerospace and semiconductor industries which require easy operation and simultaneous 5-axis machining. More than 40% of Mazak customers in Taiwan are promoting process integration by introducing multi-tasking machines and the realization of the unattended factory through the use of robots. Accordingly, the MAZATROL SmoothX was highly regarded because it had all the management functions needed for production, as well as an interface for management software.



Mazak booth



Presentation stage featuring the MAZATROL SmoothX CNC



SmoothX CNC demonstration



Visitors in front of presentation stage



INTEGREX i-400S with MAZATROL SmoothX CNC



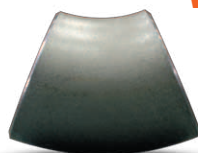
K.O 7 sports car



01

Customer Report 01

VERSATECH – an important step to becoming a manufacturer



Japan Sanshinseisaku Co., Ltd.

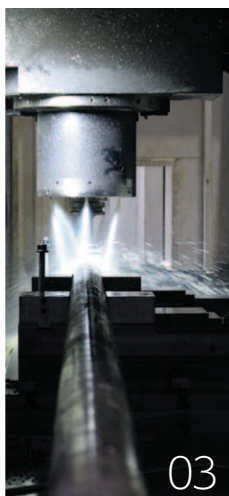
Located in Kure, Hiroshima Prefecture, Sanshinseisaku Co., Ltd. processes parts for boilers, turbines, pumps, and other similar components, and started full-scale operation of a new plant on March 1, 2015. In the plant, where almost all machines installed are Mazak, the most prominent one is the VERSATECH V-100N, a multiple-surface 5-axis double column vertical machining center. What does Mr. Takeyoshi, the president and CEO who is very familiar with Mazak machines, expect to achieve with this machine?



Hiroshima, Japan



02



03



04

- 01. Recently installed VERSATECH V-100N
- 02. Stylish exterior of the new plant
- 03. Machining of boiler parts by FJV-35/120 II
- 04. Mr. Takeyoshi, president (center) and employees

COMPANY PROFILE



Sanshinseisaku Co., Ltd.

President and CEO : Nobuyuki Takeyoshi
Address : 4-1-10 Uchinoumi Minami, Yasuura-cho, Kure-shi, Hiroshima
Number of employees : 11
www.sanshinseisaku.co.jp



Customer Report 01
Japan Sanshinseisaku Co., Ltd.

We want to be a company providing a valuable service

"The greatest feature of the VERSATECH is that special processing can be completed in a single machine setup. We want to make use of the machine to be a company providing our special expertise to our customers. The VERSATECH is a dependable tool to reach that goal," says the president. The company has already acquired a site adjacent to the new plant in preparation for business expansion in the future.

"When our current main business of machining grows to a certain level, we will also start an assembly business and hope to ultimately become an independent manufacturer to produce our own products to our customers. In that sense, the establishment of the new plant is not a long-sought goal but a start toward our dream for the future."

High Technical skills for CNC machine tools

Sanshinseisaku Co., Ltd's strength is its technical ability to easily operate a CNC lathe for extremely complex machining operations. Mr. Takeyoshi proudly says "I have much experience with boilers, so I could machine components for boilers even with my eyes closed." Most of the machine tools are Mazak because "I experienced Mazak machines when I was in training, and fell in love with the user friendliness of the MAZATROL."



Old and new Mazak machines arranged in the plant



"This machine is a real money-maker," Mr. Takeyoshi said while talking about the M4, which has been used for many years

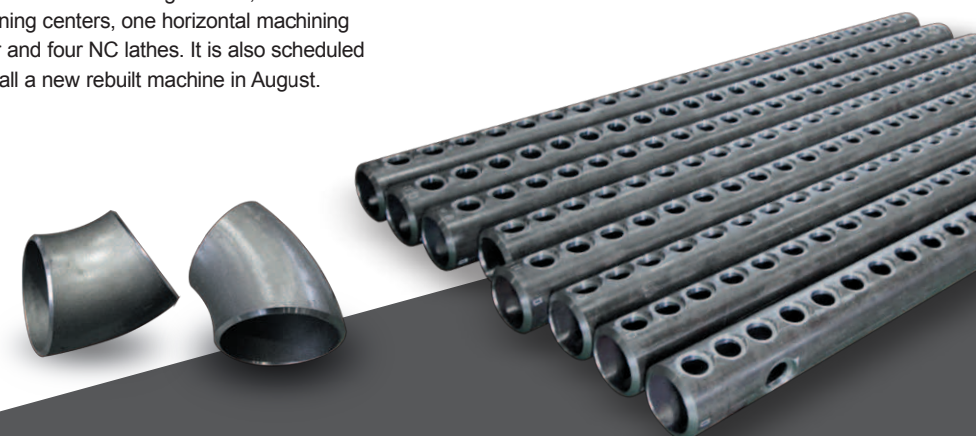
The fact that the company often receives extremely difficult jobs demonstrates the solid trust in Mr. Takeyoshi, who can skillfully handle the MAZATROL and meet customer demands with excellent craftsmanship.

Active introduction of machines as required by the policy to "accept all orders" made the plant too crowded in only three and a half years from the start of business. Accordingly, the company decided to move to the current location. The new plant is equipped with the VERSATECH in addition to one multi-tasking machine, three double column machining centers, four vertical machining centers, one horizontal machining center and four NC lathes. It is also scheduled to install a new rebuilt machine in August.

Such a stance gradually became well-known, and customers also recommended Sanshinseisaku Co., Ltd to other companies, which led to an increase in orders. The sales grew as well, from 1.3 million yen (10,833 US\$) in the month the company started to 80 million yen (666,666 US\$) in the first year of business, and almost doubled in the second year to 150 million yen (1,250,000 US\$). This considerable growth was supported by active capital investment that was personally financed by Mr. Takeyoshi. Starting operation with three used NC lathes, the company introduced rebuilt machines at the rate of one every three months. "We were able to purchase the long-awaited new machines one year later."



VERSATECH and other Mazak machine tools



▲ Parts for boilers - although these workpieces may look simple at first glance, all require complex machining operations



Customer Report 02

Instruments that "optically measure sweetness"

Japan ATAGO CO., LTD.

In a supermarket or grocery store, seasonal fruits are often displayed with their sugar content. The figures are determined with instruments that measure sweetness, and ATAGO CO., LTD., a company located in Minato-ku, Tokyo commands 80% of the Japanese market of such instruments. As a change of sugar content by even one degree may affect the sales of the fruits, the instrument has to be extremely precise. Such high precision is supported by the technical development capability of the company and the exceptional cutting performance of Mazak machines to finish original components for the instruments.

Fukaya Factory
Saitama, Japan

HQ
Tokyo, Japan



02



03

01. Exterior of Fukaya Factory
02. Mazak machines with "ATAGO color"
03. Mr. Hideyuki Amamiya, president (rear row, third from right) and employees

COMPANY PROFILE



ATAGO CO., LTD

President : Hideyuki Amamiya
Headquarters : The Front Tower Shiba Koen, 23rd Floor, 2-6-3 Shiba-koen, Minato-ku, Tokyo
Factory : 501 Omaeda, Fukaya-shi, Saitama
Number of employees : 147
www.atago.net



Aggressive expansion of overseas business with focus on potential for growth

ATAGO mostly focuses on foreign markets that have potential for growth. "When a country becomes richer, the safety and quality standards are tightened to require numerical value management, which generates demand for our products," Mr. Amamiya stated, emphasizing the social role of refractometers, the company's main product. It is scheduled to establish joint ventures in Mexico and Nigeria this year and in Dubai next year to develop a system to ensure that the company can provide maintenance and other after-sales service and support promptly.



"Our goal is steady growth," Mr. Amamiya states that the company will continue to focus on the manufacturing floor even during business expansion



Precision instruments assembly

"We develop products, such as hand-held refractometers and the world's first digital refractometers, based on our expertise as a manufacturer dedicated to this field, and manufacture them internally. It is our company's greatest strength to consistently maintain this stance," says Mr. Amamiya. In fact, almost all of the production processes, ranging from product development to processing, assembly, inspection and shipment, are completed within the company.

► RePo-1, portable Refracto-Polarimeter that determines the percentages of fructose, glucose and other constituents in a sugar solution (left).
The prism chassis is machined by Mazak machines.
PAL-1, hand-held "pocket" refractometer (right) received the 2003 Good Design Award.



Customer Report 02

Japan ATAGO CO., LTD



The slogan displayed in the factory states:
"We are professionals. We have pride as the best manufacturing company"

Factory where employees say TGIM

"In addition to the usability, the machine design is another great feature of MAZATROL because good design makes the workers more enthusiastic," the president frankly talked about how he feels about the Mazak machines. His words were endorsed by the fact that the company's Fukaya Factory received the 2011 Good Design Award. The factory was constructed under the leadership of Mr. Amamiya, after being deeply impressed by the Ferrari factory. The president materialized his wish to "make the employees more satisfied with their company."

TGIF, which stands for Thank God, It's Friday, expresses everyone's pleasure for making it to the end of the work week. Based on this phrase, Mr. Amamiya expressed TGIM – his goal is to have a working environment where the company employees look forward to coming to work even on Monday.



01

Customer Report 03

Realizing the benefits of FMS operation

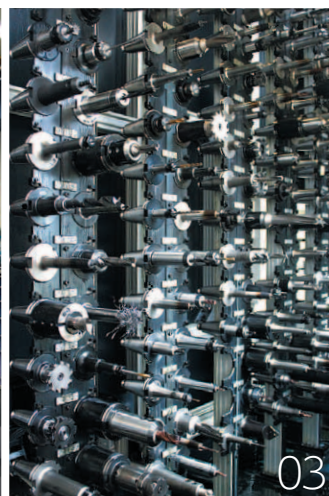


Germany Götz Maschinenbau

MACHINING CENTERS – Götz Maschinenbau has successfully performed the balancing act of focusing on technically challenging individual parts and small batches and still carrying out unmanned production in a third shift. This was made possible by using Mazak machines with PALLETECH manufacturing cells.



02



03



04

- 01. Work is conveyed in the PALLETECH System from the stocker on the left to the FH-6800 on the right
- 02. Loading station for workpiece setup
- 03. Tool hive - Götz Maschinenbau uses more than 250 tools
- 04. From the left : Martin Röttele, Philipp Götz, Roland Götz (president) and Lukas Götz

COMPANY PROFILE



Götz Maschinenbau

Managing Director : Roland Götz
Address : Industriestraße 3, 76470 Ötigheim
Number of employees : 85
www.goetz-maschinenbau.de



Literally from nothing, Roland Götz started his business in 1980. The development of the company, which has been based in Ötigheim, Baden since 1991, can be a lesson for every founder of a company. With a lot of know-how and a keen sense of how to get an advantage over his competitors by utilization of modern production means, he turned Götz Maschinenbau into a flourishing company which is still continuing to expand. Even the first steps were already unusual. Roland Götz first gained experience over a period of four years by working in companies of various industries. After taking his master craftsman's diploma, he started with establishing and managing a new training center for occupational re-training measures. "At that time, I kept on doing what I had been doing before – I kept on learning", Roland Götz comments this time.



"It's quite something when a machine is running 20 hours a day," says Roland Götz, Managing Director of Roland Götz Maschinenbau GmbH

In 1986, his first new machine was a Mazak lathe and he purchased a second one in the following year. At first, Mazak was appealing due to the great cost effectiveness. In 1991, the first machining center was also a Mazak product. "When looking at our first horizontal machining center, you would never believe that we have been using it for 14 years. The machine is well-maintained and, thanks to the Mazak service team, it is in a great condition," Götz praises the machining center. Most likely, however, it will soon have to make way for a more efficient model.

High availability

Martin Röttele, area sales manager of Georg Noll Werkzeugmaschinen GmbH & Co. KG, Mazak's first dealer in Europe, has been accompanying Götz's business for 25 years. He well remembers the moment when Roland Götz saw a Mazak PALLETECH system on a trade fair in Switzerland in 2000 – and wanted to buy this flexible manufacturing system (FMS) on the spot. The introduction of comprehensive automation solutions and the resulting ability of unmanned operation in a third shift was a milestone in the company's history. However, Martin Röttele admits that he was actually targeting other customers with the palletizing system: "At first, we'd been looking for potential customers in larger companies which are able to cope with such an investment more easily. I found it remarkable that a company like Götz, which was relatively small at that time, took this step."

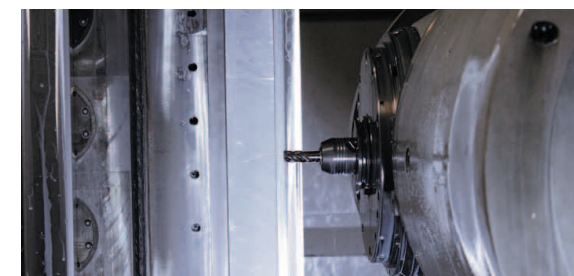


Operator programming a MAZATROL CNC

Early recognition of advantages

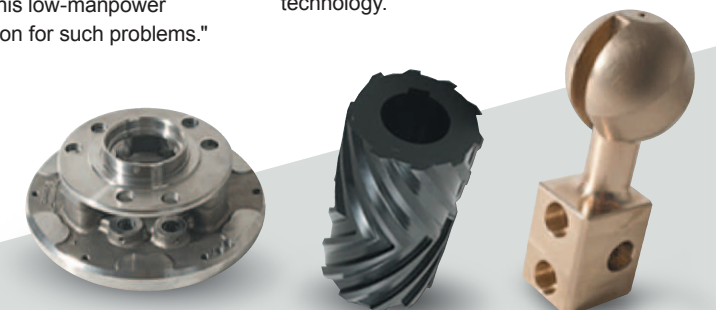
"It is remarkable how soon Roland Götz recognized the advantages of the FMS," comments Martin Röttele regarding the development. "The Swiss already had problems with the unit labor costs a few years ago and discovered this low-manpower production as a solution for such problems."

Not only did Götz get a cost advantage over his competitors by introducing the third shift but the automation also helped him to counteract the shortage of skilled workers to some extent. He also receives less applications for apprenticeships every year. As another measure, programming may be outsourced to an external system. In the future, only a few tasks shall be programmed directly on the machines – a process that, for example in case of drilling cycles, currently still offers some advantages over external programming. The next step in the history of the company will be its transfer to Götz's two sons. The older one, mechanical engineer Philipp Götz, already manages the component assembly department located in a separate facility which was started in 2013. Here, for example, gearboxes are pre-assembled, which are then delivered directly to the customers for final assembly, and finished products such as surgery chairs and tables are assembled. Before retiring from his management position, however, Roland Götz has still some ambitious plans.



Machining by INTEGREX e-1550/V10

"We are now opening up the next ten-years-period with the steps required to be ahead of the field in terms of technology – with all consequences," he announces his plans. On the other side of the road, he wants to build another workshop. His declared objective is to once again rely on the most modern technology.



► Various parts produced by Götz Maschinenbau

MAZAK PEOPLE

Yamazaki Mazak U.K.LTD. European Marketing Team

 Mrs. Liu Jing

To be an expert in the European market

PROFILE >> Mrs. Liu Jing

Born in Beijing, China and graduated from Sichuan University. Mrs. Liu joined Yamazaki Mazak UK Ltd. in 2007, and currently engages in marketing activities for all of Europe. She enjoys listening to music and swimming during her leisure time, and practices golf with her son on weekends.

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 in the forefront of the Group companies. This issue features Mrs. Liu Jing, who is working for Yamazaki Mazak UK Ltd., the Mazak subsidiary in the UK. As the company manages Mazak's activities not only in the UK but also across Europe, her jobs are wide ranging.

A Typical Day for Mrs. Liu



>> Go to the office

Mrs. Liu drives 15 minutes from her home in Droitwich to the office. On the way, she drops off her son at his school.



>> Start of work

Checking emails is the first thing she does in the morning. In addition to European countries and Headquarters, she also maintains close contact with related parties outside the company.



>> Lunch

Lunch with colleagues in the cafeteria. The menu includes Japanese food and European cuisines. Her favorite is miso soup.



>> Meeting

She has regular meetings with providers of services such as PR, design and decoration in trade fairs.



>> Presentation

The most attention is paid to smooth operation when conducting a MIMTA tour. Top priority is providing customers an excellent and memorable experience.



>> Leave the office

Right after leaving the office, she goes to her son's school to pick him up. She talks about what happened that day with him on the way home.

—What is your current job?

As a member of the European marketing team, I engage in promotion and advertising for our sales offices located in European countries, provide support for exhibitions in trade fairs and produce sales promotion materials. Arrangement of MIMTA tours is another crucial duty. As our company is an official supplier for McLaren Honda, I also keep in direct contact with the Formula One team on behalf of the company.

—How does the European headquarters control the sales bases in European countries?

As our team has only three permanent members, flexibility is the key. In addition, we respect the cultures and work styles of the countries and respond to each of them carefully. To this end, regular meetings have been launched recently for the headquarters to talk with responsible persons from the countries. Making use of these opportunities, we exchange opinions about the most suitable marketing strategy for each country.

—What difficulties have you experienced in your work and how did you solve them?

In a year when EMO (European Machine Tool Exhibition) is held, there is always much to do for the preparation because we have to arrange everything for the event in coordination with the bases in European countries. From planning to operation when the event opens, we prepare thoroughly through united efforts of the organization with the cooperation of suppliers. We try to respond to the situation in a flexible manner.



Marketing team Christmas party

—What is the significance of and difficulties in working in the UK?

I am enjoying it very much. In Worcester, where I work, everyone knows Mazak. I am living a busy but fulfilling life, and do not find it difficult to work as a foreigner. Although I was confused with the differences from my country at first, I have gotten used to life here. With respect to food, my favorite local specialty is fish & chips.

—What will you try to achieve in the future?

My personal goals are the same as the company's goals. I want to be a success and I want to be part of a successful company. I think we have a great opportunity in the European market with our latest generation of machines and CNC allied to our service and applications support. We need to continue to market our aftersales support especially, that is a real differentiator for us.

Mrs. Liu from China works for the European headquarters of a Japanese company in the UK, mainly handles communication with other countries. Her profile has much in common with that of Mazak, which is active in the global arena. The revival of McLaren Honda will make her job even busier.

Mrs. Liu's business tools

Excellent business persons have essential items they need to always keep for business. Mrs. Liu particularly recommends the following item:

Taihu Baiyun green tea

Chinese green tea is an essential item for Mrs. Liu during work as she says, "My concentration improves after drinking it." Her favorite brand is Taihu Baiyun, which is produced in Jiangsu Province. "The aroma of fresh and young tea leaf reminds me of China, my home country." In the Chinese style, a pot is not used but hot water is poured into a cup with tea leaves in it to drink directly. She makes it a rule to drink the tea three times a day, even during a trip.



News & Topics



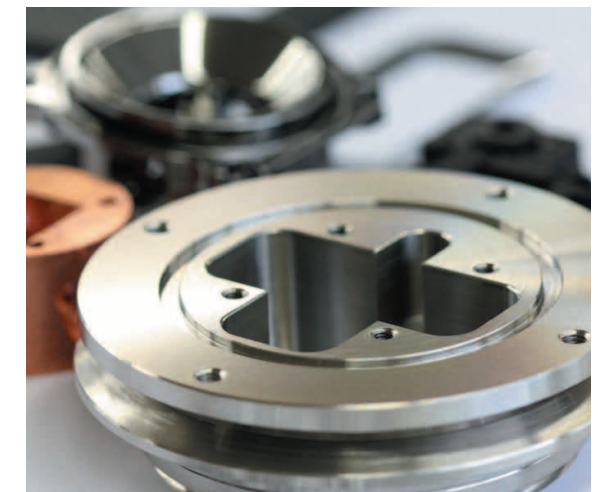
VORTEX HORIZONTAL PROFILER 160



Designed for the machining of mid to large aerospace components with unsurpassed efficiency

- 5-axis simultaneous machining of workpieces up to 4000 mm × 1250 mm
- Rigid machine construction for heavy-duty machining
- Compact HSK-A63 26,000 rpm integral spindle/motor

This Issue's Cover



Components of the ATAGO CO., LTD. Refracto-Polarimeter. These parts are produced on Mazak machine tools at the Fukaya Factory in Saitama prefecture.

The Yamazaki Mazak Museum of Art was opened in April 2010 in 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, as well as Art Nouveau glasswork, furniture, and more. We look forward to seeing you at the museum.



GALLÉ, Émile [1846-1904] "L'Hippocampe," applied and engraved vase with seahorse design c.1903

THE YAMAZAKI MAZAK MUSEUM OF ART Collection Showcase 1

GALLÉ, Émile "L'Hippocampe,"

The seahorse swings in the depths of the dark sea.

This piece of art was a gift from Gallé to Reinach, an attorney who played an important role in the Dreyfus Affair.

"Hippocampus," the Latin word for seahorse, is an anatomical term for a part of the brain connected with memory. Recently, French scholars have suggested that this motif was used symbolically, expressing the hope that people would always remember the Dreyfus Affair.

There are a number of variants of this piece. One of them is in the collection of the Danish monarchy. It was part of the gift given to Frederick VIII and Queen Louise of Denmark by the French Republic on the occasion of the royal couple's visit to France.

THE YAMAZAKI MAZAK MUSEUM OF ART Collection Showcase 2

COURBET, Gustave "The Wave"

Courbet was a French painter, born in Ornans in the Franche-Comté region of western France near the Swiss border. He retained a strong affection for his hometown throughout his life.

He rejected classical and romantic themes and advocated the painting of things that exist in reality and that the artist can see with his own eyes. He promoted his work under the label of "realism." This realist approach, depicting reality as it appears to the human eye, was carried on by the Impressionists, fomenting an artistic revolution in the late nineteenth century. As a result, Courbet is regarded as a precursor of Impressionism.

Courbet spent the summer of 1869 near the coast of Normandy and painted the sea in all of its moods, from peaceful to angry. Some of these paintings depict a calm sea conducive to meditation and others portray crashing waves that express fierce emotion. In this painting, the calm twilight sky in the background is juxtaposed with the violent waves in the foreground, suggesting the profound mystery of nature. The sky was painted by brushing on layers of pigment and scraping them off with a palette knife, and the ocean was formed with a thick impasto applied directly by the knife. The effective evocation of material textures is characteristic of Courbet's painting.



COURBET, Gustave [1819-77] The Wave
1869 Oil on canvas