CYBER WORLD

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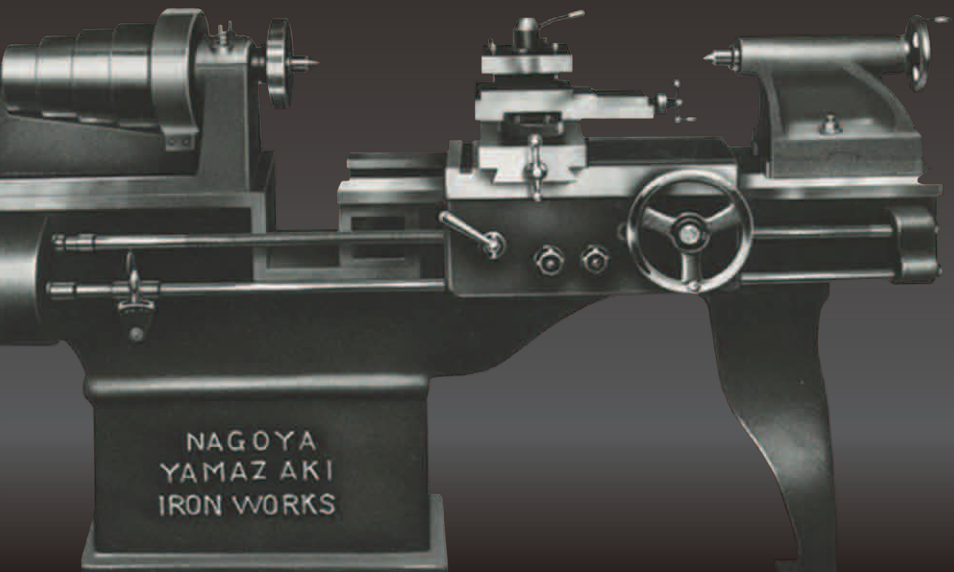
100th ANNIVERSARY
Together-Success

New Year's Greeting

Feature

Yamazaki Mazak's 100 Years of history

Customer Reports



2019
No. 56
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New Year's Greeting

Tomohisa Yamazaki,
President of Yamazaki Mazak Corporation

I wish you a Happy New Year.

Last year, the machine tool industry continued to boom as capital investment stayed at a high level in the automotive, semiconductor and various other industries, as was the case in the previous year. Reflecting strong willingness of companies to make capital investments, IMTS held in the United States in September and JIMTOF held in Japan in November both received a record high number of visitors. Statistics released by the Japan Machine Tool Builders' Association also showed that the total amount of orders set a record high for two consecutive years.

In the midst of such a record boom, the delivery of machines takes more time for the whole machine tool industry with demand outstripping supply, which is causing problems to customers. To improve this situation, Yamazaki Mazak started operation of the new Inabe Plant last year. We are also reorganizing the functions in our two plants in Minokamo and converting them into iSMART factories. We will continue to enhance production efficiency to shorten delivery times this year.

On the other hand, this favorable situation, which is recognized as "global synchronous growth," is now changing with increasing uncertainty in the global economy due to trade conflicts between the US and China and other reasons. While the future is unclear, we will respond flexibly to such market changes through the modification of the product mix and shipment destinations and other measures, which can be conducted with our global production system covering Japan, the US, Europe, China and Singapore.

Manufacturing industries are now in a time of transformation. In the automotive industry, it is said that the production process and business model will change significantly with the shift to electric vehicles and ride-sharing services. Other industries are also required to efficiently realize high-mix, low-volume production - in response to the diversification of consumer demands on a global scale. At the same time, manufacturers are facing challenges such as a decrease in the workforce and soaring personnel costs and accordingly increasing their interest in new production technologies and machine tools to solve these challenges.

To address these needs and challenges, Yamazaki Mazak is promoting the development of automation systems suitable for multiple workpieces in variable volume production, 5-axis multi-tasking machines that integrate processes to reduce the production lead time and hybrid multi-tasking machines combined with AM and other technologies. In parallel, we are advancing the development of IoT, AI, Digital Twin and other technologies that allow even unskilled operators to easily make full use of leading-edge automation systems and machine tools. We will also start to offer Mazak iCONNECT, which is an IoT-based comprehensive support, in Japan in April this year. Through this cloud-based connected service for machine tools, we will provide even better service support and solutions than before to help customers improve the productivity of their plants.

Yamazaki Mazak is celebrating its 100th anniversary in business this year. We have reached such a significant milestone thanks to the support of customers and I would like to express my deep appreciation to them. Since our foundation, we have been continuously committed to various new areas as a forerunner in the industry, such as the establishment of overseas production and support systems and the development of MAZATROL, an interactive CNC system, as well as the INTEGREX, which has become synonymous with multi-tasking machines. I believe that those continuous efforts allowed us to grow the Mazak brand worldwide and build a strong trust relationship with customers. We will continue to challenge ourselves and work diligently to prove worthy of the trust of our customers.

As a project to commemorate our 100th anniversary, we are scheduled to open the Yamazaki Mazak Museum of Machine Tools in the autumn of this year. It is regrettable that machine tools are not well known among the general public because they have few opportunities to see them. We hope that the museum helps many people learn about machine tools and become interested in manufacturing to support the growth of the whole manufacturing industry.

As we did in the past 100 years, we will continue to contribute to society and help build a prosperous future with technology.

Last but not least, I hope for your continued good health and success in this New Year.

Mazak 100 YEARS OF CONTINUOUS PROGRESS

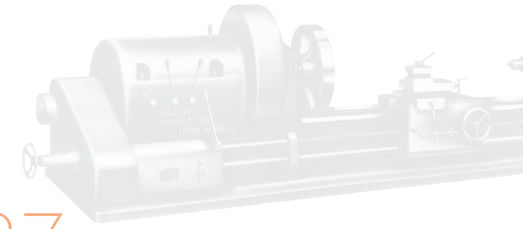
Yamazaki Mazak's 100 years of history

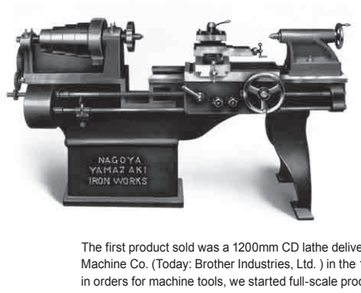
The history of Yamazaki Mazak, which celebrates its 100th anniversary in business this year, is shown chronologically below:

Product history

Company history

1919 to 1964



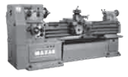


1927
Began the manufacturing of machine tools

The first product sold was a 1200mm CD lathe delivered to Yasui Brother Sewing Machine Co. (Today: Brother Industries, Ltd.) in the 1928. With subsequent increases in orders for machine tools, we started full-scale production of machine tools in 1931.

1959


General-purpose lathe
LB 1500

1963


General-purpose lathe
MAZAK 1500

1919
Sadakichi Yamazaki Founder of Yamazaki Machinery

Initially manufactured and sold straw mat weaving machinery and later expanded as a woodworking machinery manufacturer.

1930 | 1940 | 1950 | 1960

1944
Temporarily moved the plant to Ishikawa prefecture to escape the impact of the war

1947
Returned the plant to Nagoya and restarted operation rebuilding machine tools

1961
Started operation of Oguchi Plant

1962
Teruyuki Yamazaki appointed president

1962
Export of first machine to the US

Sold machine tools to a US company with more than 30 designing changes, including modification to inch-based standard and hardening of the bed. This experience helped us learn techniques to manufacture world-class machine tools.

Newspaper article reporting the first export of MAZAK machines to the US

1963
MAZAK brand introduction

Since "YAMAZAKI" is difficult to pronounce for persons outside of Japan, the "YA" and "I" were removed to use "MAZAK" as the brand name. At that time, it was very rare for Japanese companies to take considerations for the global market when deciding a brand name.

1965 to 2000

1965
Moved company headquarters from Nagoya to Oguchi, Aichi Prefecture

1968
Established US subsidiary - Yamazaki Machinery Corporation

First Mazak NC lathe **MTC 1000M**

1969
Export of first NC lathe to the US

1970

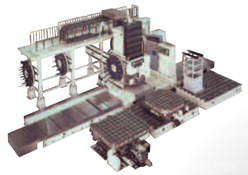
First Mazak machining center, **BTC. No.5**

1974
Started operation of US manufacturing facility

Built plant in Kentucky and started knockdown production. Following repeated expansions, completed the establishment of an integrated production system covering the whole process from parts machining to assembly in 1983.

1975
Established Belgian subsidiary - Yamazaki Machinery Europe

1976



YMS-30

Mazak's first full-scale machining system featuring a machining section, a workpiece handling section and tooling section. This modular design provided unsurpassed flexibility in meeting a wide variety of production requirements.

1978
YMS-30 received the Japan Society of Mechanical Engineers Award

1980

SLANT TURN 30 Mill Center

Machine tool equipped with both turning and milling functions. This was the predecessor to today's INTEGREX series – the start of multi-tasking machine tools development.

1981

MAZATROL T-1

First MAZATROL CNC system
Revolutionary CNC that automatically determined required tools and cutting conditions for machining making it possible for inexperienced operators to quickly and easily make programs. The conversational MAZATROL programming method was welcomed by many small factories that had problems due to the shortage of skilled employees.

QUICK TURN 10

First QUICK TURN turning center – designed to provide unsurpassed value thanks to high performance and the advanced MAZATROL T-1 CNC system

1981
Started FMF operation at the Oguchi Plant

FMS performed unmanned operation during the evening to considerably improve factory utilization. Covered in Japanese TV program and by mass media companies from the US and Europe.

1981
Established Progressive Manufacturing Foundation (Today: The MAZAK Foundation)

1983

MAZATROL FMS

1983
Started operation of the Minokamo Plant

1984

First Mazak laser processing machine **LASER PATH 4040**

1985
Changed company name to Yamazaki Mazak Corporation

Implemented new corporate identity campaign. Changed the company name to Yamazaki Mazak Corporation from Yamazaki Machinery Works, Ltd. Adopted orange, which represents warmth and passion, as the corporate color. The three lines in the "M" logo represent high quality, innovative spirit and internationality.

1987

MULTIPLEX 620

First MULTIPLEX turning center - a single machine with the machining capacity equivalent to that of two CNC lathes. This innovative two-turret/two-spindle design drew much attention from manufacturers worldwide.

1987
Started operation of Yamazaki Machinery U.K.

During talks between the UK Prime Minister Margaret Thatcher and the Japanese Prime Minister in 1984, Mrs. Thatcher recommended that the advanced Yamazaki Mazak manufacturing facility to be built in the UK.

1988
All-American Top 10 Best Company Award

1990

SUPER TURBO X-48

1992
Started operation of the Singapore Plant

Queen's Award for Export Achievement in the UK
(also awarded in 2007)

1990

PALLETECH SYSTEM

1997

INTEGREX 200Y

First INTEGREX multi-tasking machine – equipped with a B-axis to provide machining capability comparable to a machining center.

1998

MAZATROL FUSION 640

CNC system developed by incorporating the concept of "integration of CNC and PC." This made it possible for machine tools to be easily integrated in a factory network for convenient production management including control of machining programs and tool data.

1998
Upgraded Oguchi Plant to a Cyber Factory

1999

VARIAXIS 200

1999

3D FABRI GEAR 300

First 3D FABRI GEAR laser processing machine – automatic 5-axis cutting of long pipe and structural material. High accuracy cutting of the complex contours required for tight pipe joints significantly reduced the time required for processing structural material.

2000
Started operation of Little Giant Plant in China

Initially produced CNC turning centers and currently manufactures horizontal machining centers and automation systems. The plant name "Little Giant" is derived from the goal of having a large output produced by a small number of skilled employees.

2001 to 2019

2001

INTEGREX e-410H

INTEGREX e-1060V

INTEGREX e-H and e-V series – the first large multi-tasking machines. With large cutting capacities and various functions to provide operator support, these machines significantly improved productivity in the machining of complex/large parts.

2002

QUICK TURN NEXUS

VERTICAL CENTER NEXUS

2004

MAZA-CARE maintenance and monitoring service

Using cell phone lines, these maintenance and monitoring services were offered 24 hours a day, 365 days a year. This innovative online service support was a precedent of the current connected services.

2005

MAZATROL MATRIX

2008

New focus on machine ergonomics

Launched collaboration with Mr. Ken Okuyama, a world-class industrial designer. This collaboration accelerated comprehensive development that pursued innovations in ease of operation.

2010 **INTEGREX i-300**

2010 **INTEGREX e-670H II**

2011 **VARIAXIS i-600**

2013 **INTEGREX e-1250V/8 II**

2011

OPTIPLEX 3015 Fiber

2014

INTEGREX i-400 AM

VTC-530/20 FSW

These hybrid multi-tasking machines integrate different machining technologies with MAZAK machine tools. The AM series, which integrate additive manufacturing technology, and the FSW series, which integrate friction stir welding technology, were announced at JIMTOF 2014.

MAZATROL SmoothX

CNC system that incorporates a touchscreen for enhanced intuitive programming. Equipped with new hardware and functions to increase machining speed and improve the quality of machined surfaces, as well as an enhanced network connection and other features, this CNC system significantly raised the productivity of machine tools.

2016

Mazak SMARTBOX

The Mazak SMARTBOX ensures cyber security for a safe and reliable network connection of plant equipment. This product assists customers around the world to convert their plants into smart factories.

2017

OPTIPLEX 3015 DDL

2018

INTEGREX e-1250V/8 AG

A hybrid multi-tasking machine equipped with unique functions to machine gears. The whole process of gear processing – gear blank turning, machining and gear machining, is completed on one machine to substantially reduce in-process time while also realizing high-precision machining.

Introduced Mazak iCONNECT

Mazak iCONNECT, which is an IoT-based comprehensive support, was introduced as an advanced and expanded version of connected services.

2000

2001

Tomohisa Yamazaki appointed president

2004

DONE IN ONE concept introduced

DONE IN ONE, which means all machining processes performed by one machine, was introduced as a concept that represents the ultimate process integration pursued by Mazak. This idea is also reflected in the current development of hybrid multi-tasking machines.

2006

Established World Technology Center

2006

Started operation of Minokamo Plant 2

2008

Started operation of the Yamazaki Mazak Optonics Corporation underground factory

Established World Parts Center

2009

Established World R&D Center

2010

Opened the Yamazaki Mazak Museum of Art

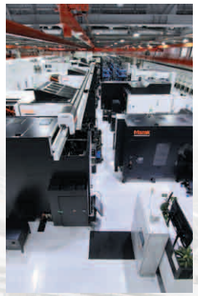
2013

Started operation of the Liaoning Plant in China

2010

2017

Converted Oguchi Plant to an iSMART Factory



First Mazak iSMART Factory, which realizes sophisticated digital manufacturing using leading-edge IoT and automation technologies, in the MAZAK Corporation US plant.
Completed the conversion of the Oguchi Plant into an iSMART Factory in 2017 and then applied it to production plants across the world. The factory not only demonstrates the effectiveness of state-of-the-art technologies and new manufacturing concepts but also develops various IoT and automation solutions in the form of new products and services.

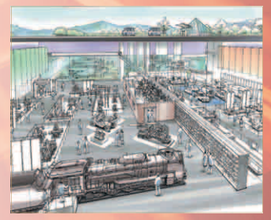
2018

Started operation of the Inabe Plant

Now, toward the next 100 years

2019

Scheduled opening of the Yamazaki Mazak Museum of Machine Tools



Customer Report 01

Aiming to be experts of precision parts machining

Japan Koa-K Corporation

From the edge of a medical scalpel to Shinkansen (bullet train) door components, the products of Koa-K Corporation cover a wide range of fields. In addition to steel, the company can also handle various other materials including aluminum, stainless steel, titanium and plastic. It is particularly renowned for its system to deliver precisely machined parts in a short time by effectively using multi-tasking machines and coordinate measuring machine. Its technical capabilities, which are so high that even local competitors say that such jobs can only be done by Koa-K, have been cultivated by Mr. Toshiharu Takayama, the founder and president of the company. He values "courage to take on challenges" and his mindset is passed on to all employees.

01. Parts machined by Koa-K, which for the semiconductor, automotive and other industries
02. Many Mazak machines installed in the plant
03. Completion of complicated and precise machining in a short time is the company's strength
04. Mr. Toshiharu Takayama, president (third from right, front row), Mr. Kouta Takayama, senior managing director (fourth from right, front row) and employees

COMPANY PROFILE

Koa-K Corporation

President and director : Toshiharu Takayama
Director : Fumiko Takayama
Senior managing director : Kouta Takayama
Address : 177-6 Harajuku, Hidaka, Saitama
Number of employees : 12

www.koa-k.com

KOA

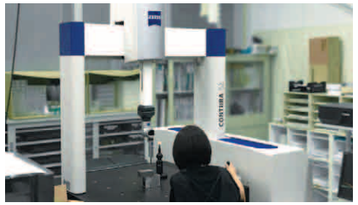
Koa-K Corporation was founded by Mr. Toshiharu Takayama, who launched his own business after supporting a plant operated by his elder brother near Tokyo in 1985. He started the company with a plant of about 10 square meters (107 ft^2), his wife and three general-purpose machines. The corporate name "Koa" came from the first letters of the names of his son (Kouta) and daughter (Ai), which demonstrates that the president regards the company as a part of his family. Since a move to Hidaka, Saitama in 1990, the company has steadily extended its plant and enhanced equipment and machines in response to the expansion of its operations.
The strength of Koa-K is its ability to quickly produce and deliver complex and high precision parts. "We even select the coolant carefully to improve machining quality. We will definitely finish any order that we receive," said Mr. Toshiharu Takayama, talking about the mindset valued by the company. Its careful work that meets various demands, ranging from production of a single part to mass production machining, enjoys a deep trust from customers in the automotive, semiconductor, mold and various other industries.

Mr. Toshiharu Takayama, president (right) and Mr. Kouta Takayama, senior managing director talking about the vision of the company

After Mr. Kouta Takayama, senior managing director, joined the company, Koa-K earned even more respect from local competitors. "In my early years, I learned the way of my father, visited plants of other manufacturers and attended study meetings to train myself out of a desire not to lose to competitors," said Mr. Kouta Takayama, looking back on those days.

Prototype parts finished by continuous work over three days and nights

"Not to lose to competitors," Mr. Kouta Takayama decided to enter the business of prototype machining of precision parts on a full scale. The decision was made with the "courage to take on challenges," which was passed on by his father. However, it was not easy to realize this goal.
"The first automotive-related order we received was the production of prototype parts for racing cars. But every time we delivered the parts, they were returned with requests for modifications. Eventually, we worked hard with Mazak machines for three days and nights and finally finished parts with a complex shape. While this experience made the company realize the difficulty of prototype machining of precision parts, it was also convinced that the ability to handle such machining would become its advantage.



Coordinate measuring machine was introduced to guarantee high precision

In 2014, Koa-K introduced a CMM to further improve its quality management system. The investment was adventurous and unusual among companies in the same industry. "With the synergy between the 3D measuring equipment and Mazak machines, we were able to develop a system to create good parts. With the capability to check precision thoroughly, as well as the technical ability to machine parts in any shape, we have earned customer trust," said Mr. Toshiharu Takayama with confidence in the company's strength.

Development of an organization with talented staff supported by Mazak machines

Since the foundation of Koa-K, Mazak machines have played a central role among the company's machines and helped meet high-level requests from customers. Mazak machines underpin the business model of the company as mentioned by Mr. Toshiharu Takayama that they effectively support the high-precision manufacturing and short-time delivery sought by the company. Mr. Kouta Takayama added that the setup time is really short and they are best for machining small-lot sizes. Koa-K, which operates INTEGREX masterfully, was once visited by Mr. Ken Okuyama, an industrial designer who has a contract with Mazak. Sound advice offered by the company, which thoroughly knows machines and can operate them at their maximum performance, greatly influenced the progress of design and functions of Mazak machines later.

INTEGREX i-200, which underpins the business model of the company

Koa-K recognizes the importance of "establishing an organization that can quickly cope with any situation to respond flexibly to any request for machining" and has set "talented staff" as a new keyword for its business development. "When each employee can skillfully operate Mazak machines and improve their skills, we can surely be a group of machining experts that is second to none." Mr. Kouta Takayama talked about the company's vision.
Following this comment, Mr. Toshiharu Takayama also revealed that he would pass the presidency to his son by 2020 to leave the future of Koa-K in his hands. He seems to be clearly seeing the company's future in which Mr. Kouta Takayama is solidly leading the group of experts for further growth.

▶ A wide variety of parts are machined by Koa-K, including the body of a handheld microphone (left) and a bearing retainer (right)

01

Customer Report 02

Technical support to seafood cuisine in Japan and overseas with diverse processing machines

Japan Nikko Co., Ltd.

"We want to produce machines that help develop local industries," said Mr. Atsushi Sato, president of Nikko Co., Ltd., looking back on the time when the company was established. Nikko deals in labor-saving and power-efficient machines and equipment for processing seafood and other food products. Giving top priority to meeting customer requirements since its founding, the company has delivered many machines that are the first in the industry or in the world. Its engineers, who represent more than half of the employees, have created many labor-saving and energy-efficient machines, which are highly valued both in Japan and overseas, as the fruits of their knowledge and labor. Unique capabilities to make use of mechatronic techniques and realize various requests from customers are the company's greatest strengths.

02

03

04

01. Header & Gutter Automated Processing System, which automatically processes salmon completely (left), and "Kaihyo," a system that makes silk ice (small ice crystals) instantly
02. The frame bars of the company's machines are cut by a 3D FABRI GEAR
03. The work efficiency has been significantly improved by laser cutting
04. Mr. Atsushi Sato, president (center, front row) and employees

COMPANY PROFILE

Nikko Co., Ltd.

President : Atsushi Sato
Address : 110-1 Tsuruno, Kushiro-shi, Hokkaido
Number of employees : 97

www.k-nikko.com

技術集団
株式会社 ニッコー

Nikko was founded by Mr. Sato in Kushiro, a fishery town that once was the busiest in Japan, in 1973 and incorporated in 1977. That year was also the beginning of the "200-nautical mile era," which had a major impact on the marine products industry in Japan. "It forced the fisheries industry in Japan to shift its focus from normal fishing to fish farming," said Mr. Sato. He predicted that quality would be valued more than quantity in the fisheries industry in the future as a result of the change in the environment of the marine products industry. With an idea that it is more profitable to deliver seafood in the form of primarily processed products, rather than just as unprocessed fish, for the survival of the marine products industry in Japan, Nikko started to focus on the development of machines necessary for such processing.

Mr. Sato confidently talking about the development of new products that would change seafood processing

Mr. Sato particularly considered scallops and salmon, which are representative seafood products, to be suitable raw material for the farming fishery. Nikko has developed a large number of labor-saving and power-efficient machines based on the understanding of customer demand. The products include "Auto Sheller," which steams scallop shells to separate the shellfish, and the "Header & Gutter Automated Processing System," which cuts salmon heads and opens the belly to remove guts and collect roe.
The mechanism utilized by each of the unique seafood processing machines was the world's first. These representative products of the company are used in many seafood processing sites in Japan and other countries.

Technical capacity to reduce ice making time from 24 hours to three minutes

Mr. Sato, who has advocated the shift of focus from quantity to quality, believes that freshness is the highest added value. From this belief, Nikko completed the development of "Kaihyo (sea-ice)," a continuous silk ice (small ice crystal) system, and won the 7th Japan Manufacturing Grand Prime Minister's Award for the product.
Kaihyo is a machine to be installed on a ship to create soft, small crystal ice with seawater. As its most revolutionary feature, it can make ice in just three minutes although it normally took 24 hours. The release of the product is recognized as a great innovation in the distribution of perishable seafood from the sea to supermarkets.
As represented by this system, the machines developed in the company make full use of the creativity and ingenuity of the engineers who design and manufacture them. Mr. Sato clearly stated that the best training for engineers is to visit customers to listen directly to their opinions, as well as to gain experience in the field.
Nikko has established a system to have in-house engineers independently develop the 3D measuring, sensing and other advanced technologies used in most of its products instead of outsourcing. "We do so because we will continue to actively introduce AI and other cutting-edge technologies into the company and always deliver advanced machines."

INTEGREX plays an active role in machining of complex parts

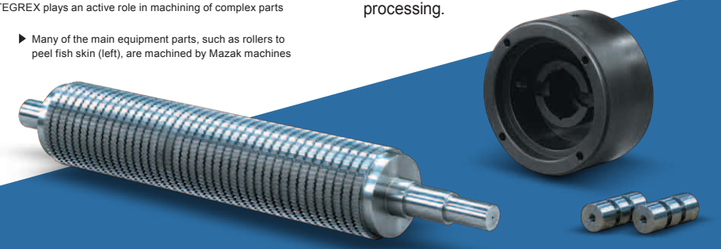
Productivity has been greatly increased by the 3D FABRI GEAR

Nikko has introduced Mazak machines including machine tools such as the FJV and INTEGREX, as well as the 3D FABRI GEAR laser processing machine, which play a key role among the equipment and machines in the company. Mr. Sato considers that the machines should be easy to use for employees and he leaves the selection of models to the discretion of Mr. Hideki Toko, General Manager of the Manufacturing Department and Factory Manager. Mr. Toko mentioned the reasons why he selects Mazak machines, saying "The keys are significant increases in productivity with multi-tasking machines and 3D laser processing machines, ease of operation of the Mazatrol and the system to provide after-sales support such as consultation on machining techniques."

The comment from employees that the "CNC is easy to use" encouraged the introduction of Mazak machines

For example, the 3D FABRI GEAR is evaluated with the comment "It has greatly improved work efficiency and accuracy in comparison with a manual cutout or hole drilling. The effect of the introduction of the INTEGREX is also recognized with the comment "It has not only reduced the production lead time through process integration but also expanded the range of parts that can be machined."
Nikko installed a QUICK TURN 200 MY in November 2018. "I expect it to reduce the production lead time because the machining that used to be done by three different machines can now be done by one." As changes in the environment of the seafood products industry determined the direction of the company, its products will change the future of seafood processing.

▶ Many of the main equipment parts, such as rollers to peel fish skin (left), are machined by Mazak machines



01

Customer Report 03

Contributing to the mining of resources for more than 50 years

Australia FLSmidth ABON Pty Ltd

FLSmidth ABON, located in the suburbs of Melbourne, Australia, is a leading manufacturer of crushing equipment for the worldwide mining industry. Their products are mainly used in mining operations of mineral resources such as a coal, iron ore and copper and also used in various industries such as quarry applications, smelter applications, fertilizers, or cement plants. The ABON brand has sustained and continued growth stemming from recognition and acceptance of its products by major resource and mining companies.

02

03

01. Mazak INTEGREX e-800H 8000U
02. Mazak INTEGREX Alley at FLSmidth ABON
03. Neil Paxman CNC Machinist (left) and David Colasante CNC Manager with Sizer Assembly

FLSmidth ABON Pty Ltd

General Manager : Phillip Mulcahy
Address : 15-19 Marshall Road Airport West, Victoria Australia 3042
Number of employees : 80

www.flsmidthabon.com

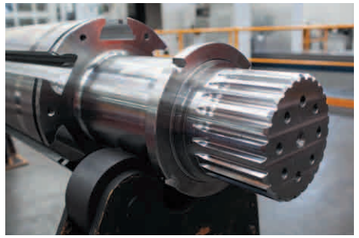
ABON, established in 1964 with incorporation taking place in 1967, joined the FLSmidth Group, which is a leading supplier of equipment and services to the global cement and minerals industries, in 1998. FLSmidth ABON's product life-cycle approach helps customers to reduce emissions, lower operating costs and enhance productivity based on a unique combination of key products, process expertise and service solutions.
A crusher is a machine designed to break large rocks into smaller rocks. Crushers may be used to reduce the size, or change the form, so that they can be more easily and effectively handled. The development of diversified products is demanded by customers based on the materials or the use of the object that is crushed.
The main products of the company are Twin Roll Sizers crushing the materials, Roller Screens sieving the materials according to size and Chain Feeders feeding the materials into machines and transporting them. The ABON products have been commissioned in Primary, Secondary, Tertiary and Quaternary process from rough crush to fine crush. Thanks to the simple machine structure and durability, machine design leads to suppress the cost and the load for maintenance.

David Colasante CNC Manager (left) and Phillip Mulcahy General Manager

Additionally, the products generate a minimum of fine particles and low noise levels. FLSmidth ABON is a world-leading technology company whose countless innovations in engineering have pioneered the minerals handling and minerals processing industries for more than 50 years.

Shortening processing time by integrating machining process

ABON previously manufactured their shaft components on multiple machines in several setups, resulting in long in-process time. After extensive study of the best available machinery and submissions from John Hart Pty Ltd, the Mazak distributor in Australia, Abon's first Mazak acquisition was the Mazak INTEGREX e-650H 6000U in 2005. "We can finish various sizes of shafts in just two setups with better quality and minimum in-process times," reflected Mr. Phillip Mulcahy, General Manager. "The ability to consolidate multiple operations with minimal setup time and reduced cycle time are key benefits of our investment in Mazak."



Spline and slotting detail on FLSmidth ABON Sizer Shaft

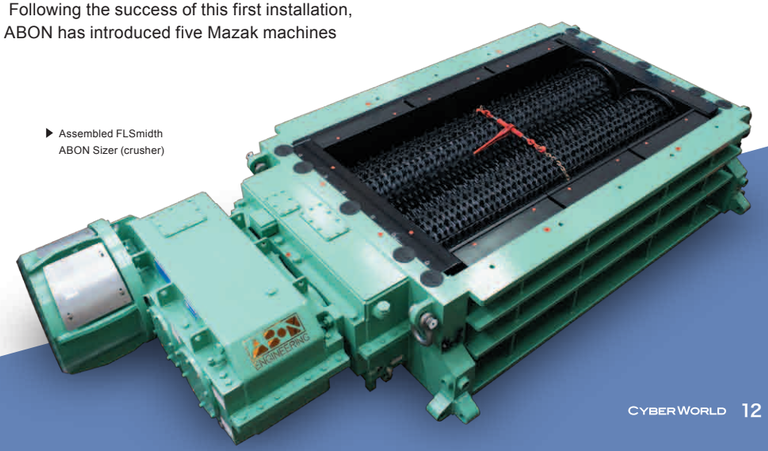
Product innovation defines their approach

Following the success of this first installation, ABON has introduced five Mazak machines including the INTEGREX e series in 2017. All are used to machine gears by the Smooth Gear Skiving and Smooth Gear Milling functions. An INTEGREX e-800H is used for spline processing on long shaft components by using the Smooth Gear Hobbing function. Especially for long shaft processing, in-process time was substantially reduced - from three weeks outsourcing to several hours. Mr. David Colasante, the CNC Manager emphasizes the investment effect saying "We continue to refine our production processes to be responsive to the ever challenging demands of our customers."

ABON's large gear (right) exhibited at JIMTOF2018
drew considerable attention by visitors to the Mazak booth

Growth for the resource industries is further expected due to the increasing demand in energy consumption with the economic development in Asia. ABON's manufacturing facility is constantly updated with the latest technology manufacturing equipment for product innovation. FLSmidth ABON is ideally positioned to offer customers the best solutions and will continue to contribute to mining mineral resources in the future.

▶ Assembled FLSmidth ABON Sizer (crusher)



PROFILE » **Ms. Tomomi Genjima**

Ms. Genjima joined the company in 2008 and was assigned to the Tsukuba Technical Center after six-months of training. Since her transfer to the Nagoya Technical Center in 2014, she has been a sales person who covers Aichi and Gifu prefectures which is where Mazak's headquarters is located.

MAZAK PEOPLE

Nagoya Technical Center, Regional Sales Office

Ms. Tomomi Genjima

Preparing quotations to meet customers' requirements

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 Ms. Tomomi Genjima, who is sales person at the Nagoya Technical Center. She is a promising sales staff member who is gaining experience every day in the large sales office with numerous customers.

——What customers are you in charge of?

I am mainly in charge of customers that machine parts for automobiles and industrial machinery. The geographical area covered by the Nagoya Technical Center is one of the major industrial regions in Japan and the parts machined by the customers are surprisingly wide-ranging. Since we often receive requests for special options for machines, I interface with design and other departments in Mazak's headquarters when making quotations to customers.

——Which business discussion was the most memorable?

The most memorable one was my first purchase order that I obtained on my own. After joining the company in 2008, I was assigned to the Tsukuba Technical Center as my first workplace. I started to engage in sales activities on a full scale in the spring of the following year, which was right after the global financial crisis. It was a tough time for sales because the amount of work of customers had decreased. On the other hand, I also thought that customers would have time to meet with me now while they would be too busy during an economic boom. So I frequently visited the plants of various customers while receiving support from senior employees. Thanks to such support, as well as luck, I won the first purchase order for me from a customer as a result of persistent sales activities. The memorable first sale was an order for the overhaul of an INTEGREX. I was really glad when the customer told me some kind words after the delivery. That customer still remembers my name and face even after nearly 10 years. I am very grateful to the customer for this and also for having listened to me who was a beginning sales person at that time.

——What do you value in your sales activities?

I try to visit the plants of customers whenever possible and directly check the conditions such as machining processes and equipment status with my own eyes. For example, even if a customer recognizes the reduction of cutting time as a challenge, you may find as a result of the examination of the whole plant that the customer actually has a problem in the setup process or the use of peripheral equipment and should solve it as the real challenge. Such "findings" made with a bird's-eye view of the whole production process are an important factor for preparing quotations for customers. In the case of a test cut or special option, I share the problems I have noticed, as well as requests from the customer, with in-house engineers to enhance the accuracy of the quotations.

Information is closely shared with application engineers to enhance the accuracy of quotations

——When do you feel rewarded by your daily work?

To sell a machine tool requires the cooperation of many employees. Exactly because the job cannot be done by one person, I find it interesting to work as sales person. If you describe Mazak simply, it is a company with warmth. There is an environment that all employees, including sales, service, design and production, work together. While the job to make quotations involves a huge responsibility because customers purchase machine tools for their future, everyone in Mazak is willing to make concerted efforts to do so. I feel motivated when I am doing my job with a sense of harmony to accomplish a task through the cooperation of everyone.

——What task do you want to tackle in the future?

Now, I just want to concentrate on satisfying the customers I am currently in charge of because I aim to further improve the accuracy of quotations and help customers increase their productivity. After gaining sufficient experience, I would like to engage in work to support sales staff in the technical centers while using the knowledge I have obtained.

The motto of Ms. Genjima is "Enjoy your work! When the job does not go well, eat something delicious for a change!" Her naturally cheerful and enthusiastic character seems to be indispensable for Mazak to further enhance its teamwork.

How she spends her days off

I like playing with my pet Chihuahua on weekends. When I have a long holiday, I travel overseas to refresh myself. I prefer warm islands in the south where I can feel comfortable and relaxed, such as Hawaii and Cebu in the Philippines.

Event Report

JIMTOF2018

The 29th JAPAN INTERNATIONAL MACHINE TOOL FAIR

The 29th Japan International Machine Tool Fair (JIMTOF 2018), one of the largest machine tool exhibitions in Asia, was held at the Tokyo Big Sight for six days from November 1 to 6, 2018. Under the theme of "DISCOVER MORE WITH MAZAK – together to the future –", Mazak displayed a total of 23 machines, including the latest models, and introduced various innovative solutions.

In last year's JIMTOF, we exhibited the VARIAXIS j-600/5X AM (blue laser specification), a hybrid multi-tasking machine using a blue semiconductor laser for the first time in the world, and demonstrated pure copper additive manufacturing, which is now attracting growing attention from the automotive and semiconductor industries. In addition, we introduced the INTEGREX AG series, which integrated gear machining and measuring functions in a multi-tasking machine, and the FJV-60/80 FSW, which integrated friction stir welding technology. The wide product range of Mazak's hybrid multi-tasking machines that can realize process integration in an advanced approach gained attention from many visitors.
As AI and IoT solutions, we also presented the Smooth AI Spindle, an AI-based function to suppress machining center chatter and announced a new IoT-based service. Moreover, we introduced solutions for automation and reduced manpower requirements, the demand for which has been growing due to rising personnel costs and labor shortage, such as a compact but highly-flexible gantry loader system (GL-50). All of the products were held in high regard as practical solutions that help plants improve their productivity. Mazak will continue to provide various solutions that respond to changes in the manufacturing environment and help customers increase the productivity of their plants.

01. VARIAXIS j-600/5X AM (blue laser), which can conduct pure copper additive manufacturing
02. INTEGREX i-200 AG, with integrated gear cutting and measurement functions
03. QUICK TURN 200M, equipped with GL-50automation system
04. Example work pieces produced by INTEGREX AG

THE YAMAZAKI MAZAK MUSEUM OF ART

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.

Collection Showcase 1
THE YAMAZAKI MAZAK MUSEUM OF ART

VIGÉE-LEBRUN, Marie Élisabeth Louise "Lady Playing Lyre"

Women's fashions in France underwent a dramatic change after 1790. Prior to the revolution, wealthy women dressed in luxurious and highly artificial dresses with tight corsets and billowing skirts held out by panniers. The most fashionable type of dress in the wake of the French revolution, especially during the decade of the 1790s, was a simple chemise-like gown similar to the ancient Greek chiton. It was made of thin, almost see-through, white muslin with a high waist, tied with a ribbon, and short, sometimes puffed, sleeves. The skirt was pulled up high enough to expose the feet. Footwear consisted of heelless sandals, tied with ribbons that crisscrossed on the ankle. Hair was curled and raised with a hair band or cut short like that of a guillotine victim. This was a somewhat uncomfortable style for France, which had a much colder climate than Greece, but once it had emerged there, it spread quickly to England, Russia, and the rest of Europe. This painting was completed during 1804, the first year of Napoleon's reign in France. Vigée-Lebrun went into exile after the revolution, traveling throughout Europe before returning to France in 1802. She crossed to England in 1803 and stayed until 1805. This work was done while she was in England. The Greek-style dress and hair band are fashions of the time. The model is shown in the guise of the poetess Sappho with a laurel crown on her head and playing a golden lyre. It is interesting to note that once Napoleon took power, the ladies of the French court returned to substantial satin and brocade dresses and once again took to adorning themselves with elegant jewelry.

VIGÉE-LEBRUN, Marie Élisabeth Louise [1755-1842]
"Lady Playing Lyre" 1804 Oil on canvas

Collection Showcase 2
THE YAMAZAKI MAZAK MUSEUM OF ART

GALLÉ, Émile "Engraved vase with Chinese lantern plant design"

The plant motif on this vase is Physalis alkekengi of the family Solanaceae, known in English as the Chinese lantern plant. In Japanese, it is written with the Chinese characters for "devil" and "lantern," suggesting the meaning of a small red lantern, and is also called hōzuki. The red fruits hanging in a line on the branch look like lighted paper lanterns. The branches bent by the weight of the bag-like fruits are carved in high relief, and there are seven layers of cased glass under the image. A transparent blue layer with black and yellow mottling (salissure) is laid over a clear underlayer, and more layers – creamy white, reddish brown, bright red, brown, and opal – are added over it. The opal glass on the surface is cut away with an engraving wheel, but bluish-white spots remain here and there. This vase reflects East Asian taste, the boldly cut relief recalling the Qianlong glass of the Qing dynasty and the tihong lacquer-carving technique practiced over many ages in China.
Much of Gallé's lacquer-like work have the same kind of deep carving as this vase.

GALLÉ, Émile [1846-1904] "Engraved vase with Chinese lantern plant design" c.1894

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