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2022 No.64

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2022 New Year's Greeting

Yamazaki Mazak Corporation
President Takashi Yamazaki

I wish you a Happy New Year.

Last year was a year of many restrictions under the influence of COVID-19, but with the spread of vaccination, the global economy began to recover. The machine tool industry has also recovered its strong performance, with the Japan Machine Tool Builders' Association raising the order quantity forecast of the beginning of last year. In the latter half of last year, large-scale machine tool exhibitions such as EMO in Europe and MECT in Japan were held for the first time in a while, and enthusiastic business talks were exchanged. We hope that the business environment continues to recover this year and we will be able to meet more customers.

With the economic recovery from the recent COVID-19 crisis, labor shortages are becoming more serious in various industries. Under these circumstances, the need for the introduction of automated systems is further increasing in the manufacturing industry. However, for some companies, restrictions on floor space and lack of skilled workers are one of the challenges with the introduction of automated system. With this customer situation in mind, last year we developed the Ez LOADER 10, an automated system that is compact and easy to set up. Starting with Ez LOADER 10, with its ease of installation, we will continue to support the customer's productivity improvement by providing optimal automation solutions that meet the various needs.

Transformation by digital technology, the so-called Digital Transformation (DX), is also becoming more important for improving the efficiency of production sites. Mazak iCONNECT^{TM}, which was renewed in April last year, connects domestic customers' machines in Japan with our company by digital technology and provides services including maintenance support and operation monitoring. We will continue to expand our support and provide services that contribute to our customers' DX.

Looking around the world, environmental protection has become a major concern. Discussions on climate change are becoming more prevalent, and measures for decarbonization are an urgent issue for the manufacturing industry as well. In response to this trend, we are accelerating our efforts to reduce CO_2 emissions throughout the product life cycle. We will promote "corporate activities aimed at reducing CO_2" company-wide, such as building an environmentally friendly factory by introducing advanced technology and new production processes.
In product development, we have been committed to developing technology to reduce the power consumption of machines in order to "propose products that contribute to the decarbonization efforts of our customers." As part of this activity, we implemented a full-scale fiber conversion of laser processing machines last year. The advantage of fiber laser machines is extremely low power consumption and we believe that they will contribute to the reduction of CO_2 in our customer's factories. Going forward, we will continue to promote sustainable manufacturing with pursuing improvements in machine performance as well as reduction of environmental impact.
We will also strengthen solutions for environment-related industries, including the increasingly electrified automobile industry. In recent years, there has been an increase in demand for processing Electric Vehicle (EV) parts using Friction Stir Welding (FSW) technology. We will further accelerate the spread of these technologies and contribute to the development of environment-related industries.

Even in a situation where the future is difficult to predict, our customers are boldly taking on new challenges focused on life after COVID-19. We will continue to work together to provide products that support the challenges of our customers.

I hope for your continued good health and success and renewed support in this New Year.

Mazak Go GREEN

Environmental Contribution

Today, as environmental problems such as global warming and air pollution become an urgent issue, the trend of "decarbonization" aiming for a carbon-free society is becoming more active on a global scale in order to protect the environment. In response to the global trend, the manufacturing industry needs to take concrete actions to reduce CO_2 emissions, and there is a strong demand for corporate activities that link changes in industrial structure to the growth of the company. Mazak has positioned "environmental" initiatives as one of its important management issues in order to achieve a carbon-free society and is promoting "Mazak Go GREEN," an activity aimed at reducing CO_2 emissions throughout the product life cycle.

Environmental management vision

We will protect the affluent earth through environmentally friendly manufacturing and contribute to the development of a sustainable society.

Action Policy

Promote corporate activities aimed at reducing CO_2 emissions throughout the product life cycle, from product development, procurement, production, sales and customer use.

2030 target

50% reduction

in carbon footprint *

(compared to 2010 levels)

* Amount of carbon dioxide emissions produced through the product life cycle

In order to achieve our environmental management vision, Mazak takes three approaches toward environmental conservation: "Corporate activities aimed at reducing CO_2 emissions," "Proposals for products that contribute to the decarbonization efforts of customers," and "Contribution to the development of environment-related industries."

Corporate activities aimed at reducing CO_2

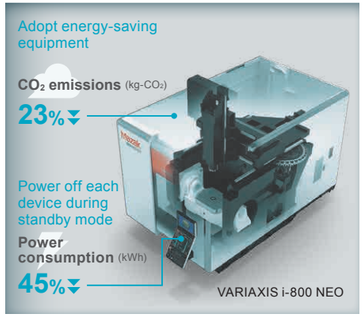
Approximately 30% reduction in CO_2 emissions at Minokamo Plant 1 through LED lighting, the latest air conditioning, and an energy management system

Aiming for an environmentally friendly company, we are working on resource-saving and energy-saving activities in the office such as improving work efficiency by utilizing digital technology, making it paperless and using LEDs. In addition, we are reducing the environmental impact associated with production activities by reducing energy consumption and industrial waste at our factories.
In collaboration with production sites around the world, we are constantly introducing new technologies and production processes to build and update environmentally friendly smart factories that minimize power consumption.

Smooth Energy Dashboard visualizes energy consumption of each machines

Smooth Monitor AX visualizes the operation status of entire factory

Proposals for products that contribute to the decarbonization efforts of customers



Contributing to customers' energy-saving efforts by further development of machines with lower power consumption

In product development, we are conscious of improving machine performance by developing new technologies and products to improve production efficiency, such as optimizing the power consumption of the entire machine and saving energy in peripheral equipment. For example, the VARIAXIS i-800 NEO has achieved a 45% reduction in power consumption and a 23% reduction in CO_2 emissions compared to conventional models. In addition, laser processing machines are switching from "CO_2 lasers" to "fiber lasers" that consume less power in all series. Some models have reduced power consumption by 80%.

Furthermore, the hybrid multi-tasking machines incorporate technologies for AM(additive manufacturing), AG(auto gear) as well as Friction Stir Welding (FSW) help to reduce transportation costs, production lead time and even CO_2 emissions because they perform most or all of machining in one cycle. We are working aggressively to achieve lower CO_2 emissions of our products.

Hybrid multi-tasking machines achieve process integration, which results in the reduction of CO_2 emissions.

Contribution to the development of environment-related industries

Renewable energy-related industries expected to grow in the future

In order to achieve decarbonization, there are great expectations for the development of environmental-related industries, including the conversion to renewable energy and Electric Vehicles (EV). In response to this trend, hybrid multi-tasking machine with friction stir welding (FSW) are increasingly being used to machine electrified automobile components. We will accelerate research and development to further improve performance considering the diversification of EV-related parts manufacturing.

Through these activities, Mazak will contribute to a carbon-free society and flexibly respond to changes in the industrial structure as well as providing optimum machine tools to all customers.

High-speed friction stir welding of aluminum cooling panels

Event Report

01

05

02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EMO MILANO 2021

01. Mazak stand front reception
02. A lively meeting area
03. A space-saving automation system demonstrated
04. Real-time monitoring of power consumption

Exhibiting 12 machines including new models for next-generation manufacturing

The largest machine tool exhibition in Europe, "EMO MILANO 2021" was held in Milan, Italy for six days from October 4th to 9th last year. The theme of this exhibition was "The Magic World of Metalworking." More than 700 companies from 34 countries and regions around the world participated in the exhibition.
Mazak exhibited 12 machines in total at EMO MILANO 2021, six machines were manufactured in Japan, four in the UK plant and two in the Singapore plant. Numerous customers visited.

Environmental regulations are advancing in Europe. At EMO MILANO 2021, many exhibitors focused on environmental conservation. At the Mazak stand, the "Smooth Energy Dashboard" was used to monitor and analyze the power consumption of the four exhibited machines. It can contribute to manage and reduce power consumption by analyzing machining programs, operational status and tool utilization data. Additionally, automation system utilizing a robot and the VCE-600 and VCN-700 vertical machining centers were presented for the first time in the world received considerable attention.

In the future, the manufacturing industry will be required not only to pursue high-precision, high-quality manufacturing but also to reduce the environmental impact. Mazak will continue to contribute to the realization of an environmentally friendly society by providing technology for manufacturing data visualization and process integration.

MECT 2021

05. Main presentation attracted attention
06. Digital setup using virtual machines was introduced
07. Demonstration of Mazak iCONNECT™, a digital service that connects to machines via the cloud
08. Ez LOADER 10 demonstrated loading / unloading workpiece

Mazak's digital manufacturing solution for carbon neutrality

Following JIMTOF, Japan's largest machine tool trade fair "Mechatronics Japan 2021" was held for four days from October 20th to 23rd last year at Port Messe Nagoya in Nagoya City, Japan. It was the first time in two years that we exhibited at a large-scale machine tool trade fair that displays actual machines, and many customers visited from afar.

Mazak exhibited a total of 6 machine tools and laser processing machines, including new models. The space-saving automation cell Ez LOADER 10 utilizing a collaborative robot was exhibited for the first time as well as the set-up demonstration by the MA-20/400 automation system for the machining center attracted a lot of attention.

In response to the growing interest in environmental conservation, our activities, which achieved considerable reduction in production lead time as well as CO_2 emission through production, were introduced in the stand. Additionally, the Mazak iCONNECT™ service for the Japanese market and digital setup were introduced for production improvement utilizing digital technology. Digital setup enables efficient setup on an office PC. Mazak iCONNECT™ is an online service using digital technology to assist customers in using their Mazak machine tools to their full potential. A wide range of support functions are available, such as providing machine specific information including manual and programming learning, remote diagnosis of machine condition for maintenance and many others.
Friction Stir Welding (FSW) is utilized in manufacturing of water cooling systems for Electric Vehicle (EV) and cooling panel for semiconductor industry that is growing global demand, which attracted attention from many visitors.

Customer Report 01

Ready to take the next leap with comprehensive strength of thin worksheet, structural material cutting and machining

Japan Ryuyo Co., Ltd.

"Being able to cut and bend as well as perform machining should be the best sales force," stated Megumu Suzuki, Senior Managing Director of Ryuyo Co., Ltd. Ryuyo, located in Iwata city, Shizuoka, has been consistently engaged in sheet metal processing since its establishment, and advanced into machining in August 2021. It is also the first step toward developing a higher value-added business from a sheet metal processing specialist. As the company does not belong to a specific corporate group and receives orders from all over the country, strengthening its sales force is indispensable for business growth. The successive introduction of Mazak machines, starting with 3D laser processing machines in 2016, contributes to developing a comprehensive strategy as a manufacturer, such as improving the in-house production rate and shortening delivery times.

01. A group of 3D laser processing machines that can flexibly processing various materials
02. Mr. Hiroyuki Suzuki, President (second from the right in the front row), Mr. Megumu Suzuki, Senior Managing Director (second from the left in the front row), and employees
03. High-precision 3D laser cutting of long structural material by the FG-220 DDL
04. Mr. Megumu Suzuki, Senior Managing Director, talking about having machining operations in-house
05. Mr. Hiroyuki Suzuki, President, talking about the company's management philosophy

COMPANY PROFILE

Ryuyo Co., Ltd.

President	: Hiroyuki Suzuki
Senior Managing Director	: Megumu Suzuki
Head Office	: 10-1 Minami Hiramatsu, Iwata, Shizuoka, Japan
Number of employees	: 116

www.ryuyo.jp

RYUYO CO.,LTD.

Decided to introduce the 3D FABRI GEAR 220 II at first glance

Ryuyo was founded in 1926 by the grandfather of Mr. Hiroyuki Suzuki, President. 60% of sales are related to construction, and 40% are for industries such as agriculture, vehicles, environment, medical, and food. The product portfolio covers a wide range of products, including construction materials, air conditioning equipment, ducts, fan boxes, iron stairs, fixed ladders on the side of building, and agricultural materials.

"Our products are mainly custom-made, we focus on increasing the added value of ordered products. Instead of granting the right to decide prices, we strive to provide products that are competitive with other companies," said Mr. Suzuki, President, talking about the management philosophy.

The 3D FABRI GEAR 220 II, a 3D laser processing machine introduced in 2016, gives an advantage in producing competitive products.

"I happened to see the machine on the factory of the customer and decided on the same day. I was just about to keep a space on the factory to install a large machine, so I thought this was the case! ". With the additional installment of the 3D FABRI GEAR 400 II in 2017 and FG-220 DDL in 2019, the line of Mazak machines has been completed.

Iron stairs welded with long pipes and structural steels machined by a 3D laser processing machine

Reduce man-hours, improve accuracy, and shorten delivery times

What caught the heart of Mr. Suzuki was the ability to perform cutting, drilling, and bevel cutting for large and long materials as well as steel frames.

"In fact, man-hours have positively decreased compared to when drew marking manually to perform machining, and accuracy has improved dramatically. Naturally, the delivery time has obviously been shortened."

The laser processing machines are installed in the second factory. The operator at the second factory evaluated the machine. “The machines enable us to easily perform cutting of large, long materials. We use different three laser processing machines depending on the material and application. Just generate production schedule on the MAZAK FX CNC control and the machine automatically performs cutting according to the schedule, which allows us to operate two machines at the same time."

The company then invested in the 5-axis machining center VARIAXIS i-800 and the double column vertical machining center FJV 5Face-60/120 after installment of the laser processing machines. "Sheet metal products have many parts that need to be machined, and until now they all depended on outsourcing. In-house production can reduce costs and shorten delivery times."

VARIAXIS i-800 enabled in-house production of machining that has been outsourced

In 2022, they plan to introduce the vertical machining center MTV-655 / 80 and the CNC turning center QUICK TURN 300. "While having the final decision over price, we intend to get an advantage of processing of large, long structural material, which other companies cannot do." said Mr. Megumu Suzuki, Senior Managing Director.

Production set-up time can be reduced with CAD/CAM software FX TUBE

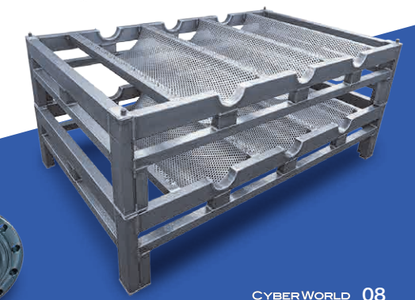
Continuously investing in the business development for the next generation

"We want to put further efforts into machining," President Suzuki said enthusiastically. They have high expectations for comprehensive business development by machining sheet metal products in-house. As part of this, the construction of an advanced unmanned sheet metal processing line including the Mazak machine is being considered. Additionally, they are considering that Mr. Megumu Suzuki, Senior Managing Director, will take over the business within three years.

"As long as we live as a manufacturing company, we want to be ahead of other companies. In order to achieve further growth, we have taken over the company engaging in machining and introduced Mazak machines." Mr. Suzuki, President revealed a part of the strategy with an eye on business succession.

Mr. Suzuki, Senior Managing Director, said, "Since there are many people of the same generation in the company, it is easy to communicate and proceed with work. Therefore, I think that the task is how to make use of advantages in terms of technology, equipment, and people."

For the 100th anniversary of the company in coming years, the company will steadily invest in system for further enhancement with an eye on the next generation.



▶ Joint parts and annealing racks processed by Mazak machines support various industries including construction, environment, and medical

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

GALLÉ, Émile "Engraved vase with design of oats and butterflies"

Opal and pink-tinged orange glass is laid over a transparent ground, followed by pear-colored glass imbedded with fine bits of white platinum and silica and topped with an overlay of dark brown glass. The motif of ripe oats and butterflies is executed with a combination of acid-etching and engraving. The design is marvelously adapted to the elongated pestle shape of the vase. Several slender oat stalks rise up from the ground in subtly curved lines, some bending sharply, and a flock of butterflies flits about on the lip which opens out gently. The bent stalks near the bottom cross each other in a complex pattern, but there is no sense that the motif has been unnaturally forced into a limited space. On the back of the vase, the overlapping heads of grain bow gracefully in the breeze. These curving stalks sinuous but sharply delineated. The long, thin whiskers of the oat husks emerging from the stalks and the feelers of the butterflies are made with trailing glass lines 0.5 mm (0.02") in diameter. The accomplished engraving technique that produced this delicate relief is one of the highlights of work produced by the Gallé glass factory.

GALLÉ, Émile [1846-1904]
"Engraved vase with design of oats and butterflies"
1890s

RENOIR, Pierre-Auguste, "Dish of Fruit"

Collection Showcase 2
THE YAMAZAKI MAZAK MUSEUM OF ART

This glazing technique was applied in painting the fruit set on the dish in the picture shown here. Transparent pigments were applied in layers as if placing pieces of colored glass on top of each other, giving luminous depth rather than brightness to the color. The objects look more like pearls than pieces of fruit. The addition of Renoir's favorite rose hues creates a pictorial surface that exudes joy.

RENOIR, Pierre-Auguste [1841-1919]
"Dish of Fruit"
Date unknown
Oil on canvas

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