MAKINO REPORT 2022

MAKINO
Promise of Performance

Makino Milling Machine Co., Ltd.
Integrated Report 2022

Quality First

Quality First

Corporate philosophy

Quality First

Makino pursues “quality first” in all of its products and services, as well as in its own organization and employees, with a strong belief in mutual trust among everyone involved in building, selling and using Makino products.

Corporate tagline

Promise of Performance

We measure our success by your success.
Our promise is rooted in relentless craftsmanship. Every day, we strive to get better and resolve to work harder. Doing our unconditional best is more than a goal, it’s a responsibility we feel to our customers.
Today, our PROMISE OF PERFORMANCE drives everything we do for you.
Makino is more than our name. It’s our word.



CONTENTS

03 Top Message
09 Makino History
11 Makino Business Model
13 Makino Value Creation Process
15 Makino Core Competencies
- 15 Intellectual Capital
- 21 Social and Relationship Capital
- 23 Manufactured Capital
- 25 Financial Capital

27 ESG Initiatives
- 29 Natural Capital
- 31 Human Capital
- 33 Corporate Governance

39 Financial and Non-financial Highlights
41 Five-Year Financial Summary
42 Corporate Information

All machines are made using machine tools.
This is the reason machine tools are called mother machines.
These machines must be high quality and reliable.
Makino will continue realizing sustainable growth as
a provider of machine tools and technologies which enhance
production efficiency, consistently meeting customer
expectations under our philosophy of Quality First.

Editorial policy

This report presents business activities and Environmental, Social and Governance (ESG) efforts from a medium- to long-term perspective to aid shareholder, investor, and other stakeholder understanding of how Makino Milling Machine Co., Ltd., contributes to the resolution of social issues and the realization of a sustainable society.

Detailed ESG information is available on the Makino corporate website. We sincerely hope the information presented in this report will assist readers in understanding Makino business activities.

Applicable Period

FY2021: April 1, 2021 to March 31, 2022
Note: Includes some information after April 2022 (FY2022)

Target organization and scope

All business activities conducted by Makino Milling Machine Co., Ltd.

Referenced guidelines

- International Integrated Reporting Council (IIRC) Framework
- Corporate Governance Code of Japan
- Global Reporting Initiatives’ GRI Sustainability Reporting Standards
- Environmental Reporting Guidelines 2018, Japan Ministry of the Environment
- ISO 26000 (International Standard for Social Responsibility for Organizations)

Caution regarding forward-looking statements

This report includes plans and strategies based on forward-looking statements. These forward-looking statements involve risks, uncertainties, and other factors that may cause actual results and performance to differ materially from those described herein.



Shotaro Miyazaki
President
Makino Milling Machine Co., Ltd.

“Makino’s business is partnering to confront the challenges our customers face regardless of the complexity.”

We strive to address our customers’ challenges and continue to discover new methods for improvement.

I am Shotaro Miyazaki. I assumed the position of president in June 2022.

Since its founding, Makino Milling Machine has sought to provide customers with the optimal equipment and technology to address the challenges they face, including developing new products and enhancing production efficiency. Our continued focus on such efforts has made Makino the company it is today. Makino will continue to strive to develop products that support solutions for these “hurdles” customers face, and I believe that my role is to provide the management that makes this possible.

I served in a sales position for 36 years, beginning in the days when 90% of our business was based in Japan. I was eventually placed in charge of overseas sales, and spent a long time in Europe. I feel that this experience allowed me to look at Makino in an objective way. I continue to maintain this perspective while running the company. While in Europe, I spent a lot of time visiting customers across the continent who used Makino products, listening to their supportive suggestions, frank opinions, and insights. We used this feedback to develop and provide products that matched the various ways in which customers actually used the equipment. Achieving these together with my colleagues in R&D and manufacturing helped me to be clearer on what kind of president I should be.

After assuming this position, one of my first initiatives was organizational restructuring. This was because I felt that the existing organizational structure made it difficult to know which internal divisions or persons to consult when responding to a client request.

I also realized from interviews with employees, that they did not necessarily have a clear idea of their own responsibilities, authority, and role. In response, we consolidated into 4 representative functions of the organization—manufacturing, R&D, sales, and corporate affairs—as well as changed the titles to directly express organizational functions more plainly. These changes have made it easier for our customers and associates to understand. This will also allow us to take the seeds of research and development, sown by the previous president Shinichi Inoue, and cultivate them into products with greater speed as well as offer solutions for the issues facing customers.



President Miyazaki in Stuttgart, Germany
(Front row, center)

Our priority is to clear the backlog created by record high orders

Makino's net sales and orders rebounded beyond our expectations in fiscal 2021 (ended March 31, 2022) as economic activity revived following the COVID-19 pandemic. Consolidated net sales rose sharply to ¥186,591 million (up 59.8% year on year), with orders received reaching a record high of ¥228,960 million (up 95.0%). Orders were particularly robust for semiconductor production equipment, as well as machining centers to make parts for new energy vehicles (NEVs) such as electric and hybrid cars.

Makino does not specifically target any particular industry for its product development and manufacturing. We provide machines that can be used for the processing needs of customers in a wide range of industries, including semiconductor manufacturing, electric vehicles, aircraft, and medical devices. Currently, demand is especially strong for semiconductor manufacturing systems. We mainly receive inquiries for electric vehicles from automobile manufacturers in China, which we feel reflects trust in the quality of our products. We also recognize aerospace is a market that can make full use of our technological capabilities, mainly because of the unique hurdles the industry needs to overcome, such as making aircraft lighter to achieve targets for carbon neutrality, manufacturing complex components with precision, and delivering parts within short timeframes. This is a sector we plan to focus on going forward. Similarly, in the medical industry, production methods for components need to be determined in detail beforehand and certification received before products can be delivered. This is also a market where orders have remained steady.

The downside of this record high order volume in fiscal 2021 is the consistently high backlog of orders, which is an issue we strive to resolve as soon as possible. We plan to enhance efficiency in order to increase production. The startup of operations at our factory in Wuhan, China, established in fiscal 2022, will contribute to improved production capacity going forward. We will continue to make capital expenditures aimed at further production increases from fiscal 2023 onward.

The sharp rise in raw material costs has prompted us to revise product prices, but we are also focusing on reducing costs. From fiscal 2022 we established the Cost Improvement Office, a seven-person team headed by an executive officer, comprising members from across the organization, including overseas, to undertake activities for reducing costs across the entire company. With assistance from 200 group employees, mainly project members, this office formulated a five-year cost reduction plan. We plan to utilize the savings to finance capital expenditures.



Activities of the Cost Improvement Office

Upfront investments with a long-term perspective and localization of management

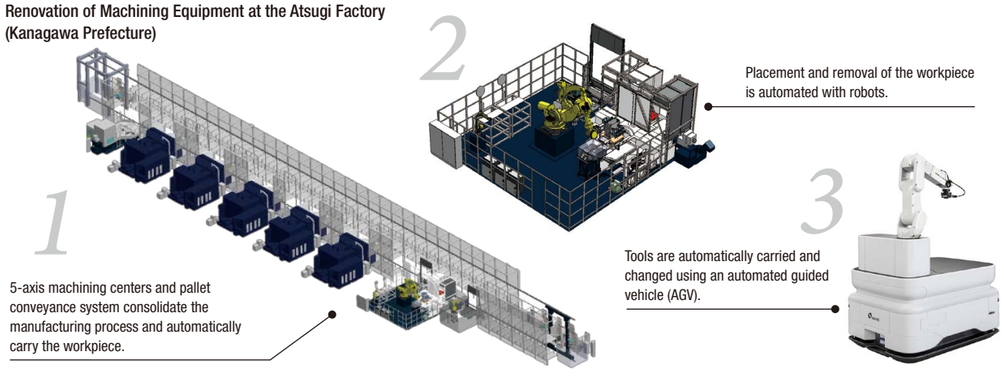
Makino's strengths in the machine tool market are of course the quality of its products, but also its local management and upfront investment.

Unlike many machine tool manufacturers who mainly manufacture in lathes (machining of rounded objects), Makino has a machine tool lineup which includes machining centers optimized for producing square objects and electrical discharge machines (EDMs), shipping products worldwide under a philosophy of Quality First. We strive to help customers overcome the "hurdles" they face in the course of the manufacturing process by offering solutions possible with Makino products, providing customers with peace of mind and earning their trust. Currently, 75% of Makino's sales are outside Japan. The overseas business has grown to a level unimaginable at the time when I joined Makino. One of the keys to this success has been Makino's focus on upfront investment.

Makino made initial investments in the U.S. and Europe in the 1970s, before we had developed customer prospects and had yet to establish a market. In the 2000s we expanded these investments to Asia. These overseas markets are extremely favorable. In each region, local employees work to serve local customers. Our current focus is on China and India, where we are proactively pursuing capital investment. Targets for investment include a new factory in Wuhan, China to further increase production and new plant construction planned for India. Some observers have expressed negative views regarding the outlook for the Chinese market, but we feel that the downturn is temporary, and taking a long-term perspective, expect the market to expand. Quality continues to improve year by year, and we recognize China is a region able to offer both quality assurance and mass production. Now is the time to consider the next phase of investment. At the same time, trust in R&D and manufacturing in Japan remains unshaken. In the second half of fiscal 2022, we will begin automating the machining production lines at our Atsugi Factory, and expect to complete the project in fiscal 2023. Our capital investment for fiscal 2022 will amount to ¥14.2 billion on a consolidated basis, 1.5 times that of the previous fiscal year. We are also making proactive capital expenditures in other regions.

Makino's focus on capital investment does not stem from optimism regarding the market outlook. It is based on learned experience that if we do not focus our efforts on the things we can do right now, we will lose our footing. Economic conditions are subject to unpredictable events that arise suddenly, whether it's the coronavirus pandemic, exchange rate fluctuations, or the financial crisis. In the present, our priority is to clear our order backlog as quickly as possible. At the same time, we also cannot neglect making upfront investments in promising regions and allocating resources with an eye towards today and tomorrow.

Renovation of Machining Equipment at the Atsugi Factory (Kanagawa Prefecture)



Contributing to the environment with a profitable, sustainable business

Makino has built a relationship with stakeholders based on the idea that trust is the foundation of our company.

In today's society, corporate management is mindful that ESG and SDGs are a vital part of building trust. However, efforts for putting ESG management into practice and contributing to SDGs need to be conducted from a long-term perspective. We believe that a profitable, sustainable business is necessary to achieve this.

This may seem like an extremely difficult goal, but Makino Milling Machine is facing this challenge head on. In October 2022, we established the Sustainability Promotion Office to take the lead in implementing sustainability activities throughout the company. One such initiative is the R&D of machine tools that contribute to carbon neutral targets. Up to now, we have focused on making equipment that meets customer demands for high-quality metalwork products or greater productivity. Moving forward we plan to more fully incorporate environmental considerations into our product development.

We are already working on a concept machine, and conducting R&D based on this prototype to achieve specific functionality, namely, the degree to which we can reduce CO_2 emissions.

MAKINO SDGs VISION

for My Home Planet





Makino contributes to realizing a sustainable future in which people involved in machine tools can grow together while carefully nurturing bonds between people like a family.

* The Three Activity Themes of the Makino SDGs Vision are presented on Page 28.

Message to stakeholders

Looking back on Makino's history, we have built strength by striving to offer solutions to the problems customers face, making us the company we are today. We will continue to work to offer the products and solutions customers need for their manufacturing.

I tell our employees to take care of our customers. By focusing on our customers needs, we provide them with the solutions to overcome their challenges. This is our business. I believe employees with sharp questioning minds who are able to address customer issues provide the backbone for industrial infrastructure across a wide range of industries.

Machine tools are an amalgamation of the component technologies of suppliers. The high degree of technological strength they provide is essential. We will continue to work closely with our suppliers, and achieve growth together.

I would like to thank our shareholders for their continued support. We will continue to pursue further growth while maintaining a balance of investment and shareholder returns.

Makino has, since its founding, provided the machine tools used in a range of industries. Going forward, we will continue to make investments in support of customers who create the products that contribute to society and the environment, while working to respond flexibly to change.

Shotaro Miyazaki
President



Makino History

Since our establishment in 1937, Makino has created a number of advanced products and technologies as a specialized manufacturer of machine tools.

In the world of machine tools, where demands for functions and levels change with times, we must continue to evolve.

Makino has been able to do this by carrying on the pioneering spirit of our founder, Tsunezo Makino, who believed we should "never imitate others and do what no one else is doing," and his dedication to "quality first" in pursuing the best in each machine we make, based on the idea that "the manufacture of machine tools is an art."

Mindful of these enduring philosophies, we will continue to take on the challenge of technological developments through continuous innovation and creativity, always "betting on machine tools" without hesitation as a specialized manufacturer.

This is Makino's DNA, and will always be our identity.



MAKINO INC.
(U.S.A)



MAKINO Europe GmbH
(Germany)



MAKINO ASIA PTE LTD
(Singapore)



MAKINO INDIA PRIVATE LIMITED
(India)



Makino China Co., Ltd.
(Kunshan, China)



Makino J China Co., Ltd.
(Wuhan, China)

1937 Tsunezo Makino establishes the Manufacturing Division of Makino Shoten, specializing in the manufacture of No. 1 type vertical milling machines.

1942 The company name is changed to Makino Vertical Milling Machine Works.



FMS factory in Atsugi Works (1983)
Consists of ten machining centers, three automated guided vehicles, an automated warehouse, tool stations, and others.

1961 The company name is changed to Makino Milling Machine Co., Ltd.

1964 Makino is listed on the Second Section of the Tokyo Stock Exchange.

1967 Atsugi Plant (Kanagawa Prefecture) is completed and begins operations.

1971 Makino is listed on the First Section of the Tokyo Stock Exchange (currently the Prime Market of the Tokyo Stock Exchange).

1975 Establishes MAKINO U.S.A. INC.

1977 Establishes Makino Technical Service Co., Ltd.

1978 Acquires an equity interest in Heidenreich & Harbeck Werkzeugmaschinenfabrik GmbH (currently MAKINO Europe GmbH) in Germany.

1981 Purchases LeBlond Machine Tool Company in the U.S., changes the name to LeBlond Makino Machine Tool Company (currently MAKINO INC.).

1983 Adds FMS factory to Atsugi Works and starts operations.

Makino Milling Machine Co., Ltd.



Atsugi Works



Katsuyama Works

1987 Fuji Katsuyama Plant (Yamanashi Prefecture) is completed and begins operations.
Acquires ownership of LeBlond Makino Asia (currently MAKINO ASIA PTE LTD).

1993 Establishes MAKINO J. Co., LTD.

2001 Establishes MAKINO INDIA PRIVATE LIMITED.

2002 Establishes Makino (China) Co., Ltd.

2008 Adds assembly plant for large-size machines to Fuji Katsuyama Works and starts operations.

2010 Opens R&D center in Singapore.

2012 Fuji Yoshida Plant (Yamanashi Prefecture) is completed and begins operations.

2013 Establishes Atsugi factory No.3 in Atsugi Works and starts operations.

2017 Nagoya branch is relocated and begins operations.

2018 Opens Kobe technical center.

2022 Makino J China Co., Ltd. constructs Wuhan Works in China and starts operations.

1952 Develops the vertical milling machine, G.

1958 Develops the K-Series of vertical milling machines.
Develops Japan's first NC milling machine, KNC.

1966 Develops Japan's first machining center, MCP-70.

1972 Develops a transfer line (FMS) consisting of adaptive control machining centers.

1975 Develops the Hi-PROGRAM I and II automatic programming system.

1976 Develops the FNC Series of NC vertical milling machines and the FNC-A Series of vertical machining centers.

1979 Develops the EC3025 of NC wire EDM.

1980 Develops the EDNC22 of NC sinker EDM.

1982 Develops the DMS Commercial Automatic Die and Mold Machining System.

1986 Develops the automatic system module MMC (Makino Machining Complex).

1987 Develops the RMC55 of NC vertical milling machines (LeBlond Makino) in Asia.

1989 Develops the A55 of horizontal machining centers.
Develops control devices, Professional 1 and 2.

1990 Develops the FX650 of vertical machining centers (LeBlond Makino) in Asia.
Develops the Mold eye H series of 3D CAM system.

1991 Develops the GI Control and Super GI Control of control technologies.

1994 Develops the J55 of horizontal machining centers.

1999 Develops the V33 of vertical machining centers.

2000 Develops the MAG series of horizontal machining center for aerospace components.

2001 Develops the a51 horizontal machining centers.
Develops the SP43 and SP64 of wire EDMs in Asia.

2006 Develops iGRINDER G5.

2008 Develops the D500 of 5-axis vertical machining centers.

2009 Develops the iQ300 of precision micromachining centers.
Develops the T4 of 5-axis machining centers.
Develops the F3, F5, PS65, and PS95 of vertical machining centers in Asia.

2010 Develops the EDAF2 and EDAF3 of sinker EDMs in Asia.

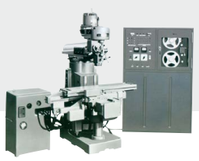
2013 Develops the D800Z of 5-axis vertical machining centers.

2017 Develops the V80S of 5-axis vertical machining centers.
Develops the iAssist of manufacturing support mobile robots.

2018 Develops the BX3 of EDM hole drilling machines.

2020 Develops the LB300/LB500 of laser machines.

2021 Develops the JA6 of horizontal machining centers in Asia.



1958
Japan's first NC milling machine, KNC



1966
Japan's first machining center, MCP-70



1980
NC sinker EDM, EDNC22



1989
Horizontal machining center, A55



1999
Vertical machining center, V33



2000
5-axis horizontal machining center, MAG series



2008
5-axis vertical machining center, D500



2009
Vertical machining center, F5



2017
5-axis vertical machining center, V80S

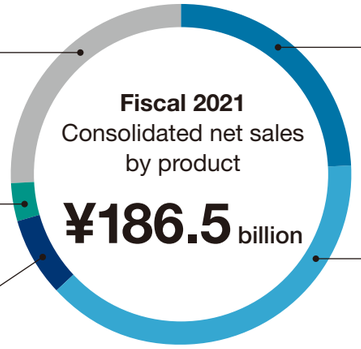


2020
Laser machine, LB300

Makino Business Model

Makino develops, manufactures and sells vertical machining centers, horizontal machining centers and 5-axis machining centers, as well as electrical discharge machines, laser machines, and milling machines. We have our own engineering department for automation and R&D department for CAM and also sell the engineering and software for these machines. Accordingly, our strength is our ability to provide customers with the know-how to maximize the use of our machines.

Net sales by product



Others
¥48.2 billion

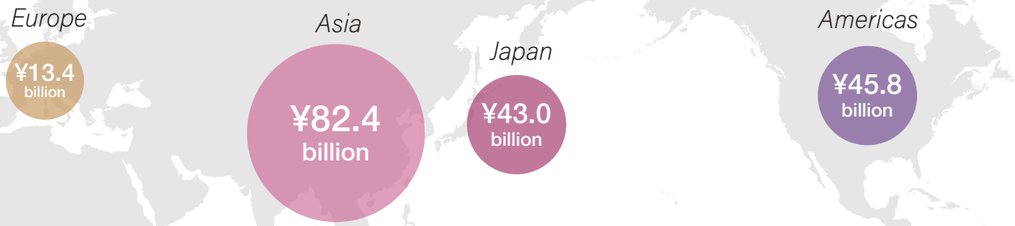
Wire EDM
¥6.5 billion

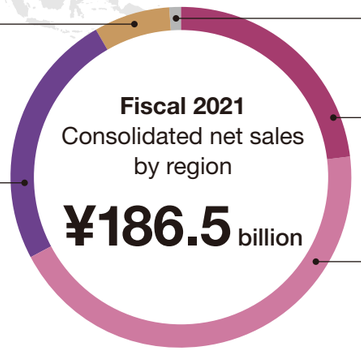
Sinker EDM
¥13.8 billion

Vertical machining center
¥45.4 billion

Horizontal machining center
¥72.7 billion

Net sales by region





Europe
¥13.4 billion

Americas
¥45.8 billion

Others ¥1.9 billion

Japan
¥43.0 billion

Asia
¥82.4 billion



Main Makino products and customer products created using Makino products

Since our founding, we have deployed technologies developed through support for customers in a variety of industries.



Makino Value Creation Process

The Makino R&D, Production, Sales and Service Divisions provide products and services supporting customer efforts to overcome challenges including developing entirely new products and enhancing production efficiency.

Identifying and solving customer issues drives industry advances and contributes to society, which leads to the enhancement of Makino's corporate value.

Corporate philosophy

Quality First

- **R&D:** Technological capabilities cultivated by assisting with the resolution of customer issues since our founding
- **Production:** Master craftsman technologies produce high-precision machines
- **Customer applications:** Point of contact for customer technical inquiries and the provision of seamless support
- **Sales and services:** Close proximity to customers around the world facilitates prompt support

Social issues

MAKINO SDGs VISION

for My Home Planet

1 Bonds between people

What we can do to build better relationships between people

2 Makino's *Monozukuri*

What we can do to create sustainable machine tools

3 Connection with customers

What we can do for our customers' manufacturing

MAKINO Production System

Customer applications

Machining centers

Services

EDMs

R&D and production

Laser machines

MAKINO

Software

Engineering

Sales and services

Provision of products and services

New challenges

Customers

Automobiles

PCs

Smartphones

Aircraft

Semiconductors

Medical equipment

Value creation

OUTCOME (Society)

Creation of a sustainable society

Industrial development

Prosperous society

Carbon neutral

Corporate value enhancement

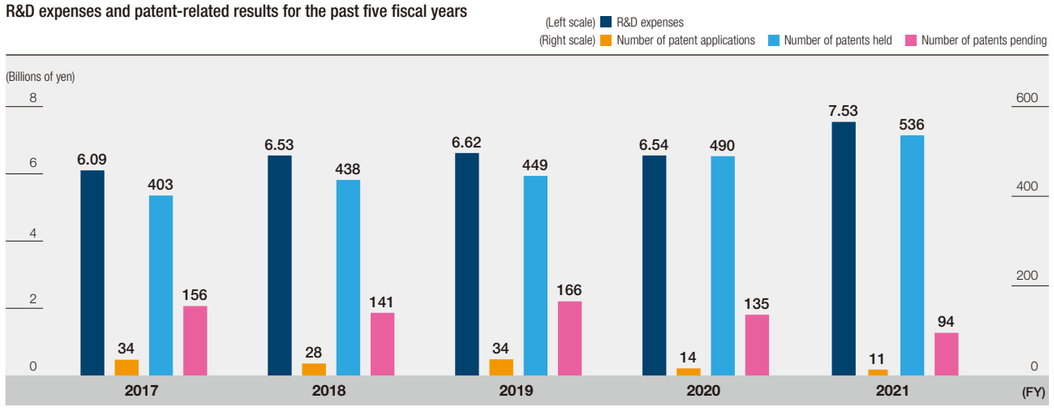
Makino Core Competencies

Intellectual Capital



Makino develops new technologies that help solve customers' complex challenges

R&D expenses and patent-related results for the past five fiscal years



* The number of patent applications is the number of patent applications filed during the fiscal year; the number of patents held and the number of patents pending are figures as of the end of the fiscal year.

In fiscal 2021, Makino allocated ¥7.53 billion (¥6.13 billion for Makino Milling Machine and domestic consolidated subsidiaries and ¥1.40 billion for its Singapore subsidiary) to R&D activities. Makino's business execution policy and corporate culture is to always take on new challenges, such as doing what other companies do not or cannot do, or things that customers have problems with. This has given the Company vitality and has also led to many patents that will contribute to future growth.

When developing a new machine, if a specific industry or material is envisioned, there are a few aspects we focus on as a whole, not to mention reflecting trends in that field.

First of all, the machine must have excellent basic performance in processing. Secondly, it must be equipped with functions and ease-of-use that consider digitalization and digital transformation (DX), such as data sharing under a cloud environment. In addition, the machines and systems must be designed with automation in mind to enable production with a smaller number of workers, taking into account the decline in working population. The machine must also have excellent environmental performance, during both manufacturing and processing. We believe these points to be the pillars of our R&D policy.

Makino has been pursuing machine tool-related technologies on both the hardware and software fronts for many years. If our products and technologies contribute, even if only in a small way, to our customers' business performance, this creates trust. This trust in turn, opens the door for us to be involved in solving further problems, and becomes the driving force behind the creation of the next technology. By repeating this cycle, we are pursuing our path as a technology-oriented company.



R&D Message

Viewing the market from a micro rather than macro perspective — A thoroughly bottoms-up approach is the Makino way

Haruyuki Shiraishi
Director, Executive Manager of R&D Division

At the top of this section, we describe "solving customers' problems" as a catchphrase, but at the same time I think this is a presumptuous expression.

Our customers have excellent technologies and knowledge in their respective fields, and in fact, most problems are solved by the customers on their own. Yet, customers cannot develop or freely modify their own processing machines. Therefore, we can help unblock bottlenecks in the overall production and processing process by developing machines, adding functions, and providing support in terms of processing technology.

I believe that this is the kind of work we are doing in a nutshell.

"What kind of functionality and quality will be required of machine tools in the future?" Naturally, we consider such questions and discuss them internally, and promote R&D based on the results of such discussions.

That said, our activities do not plan and conceive of products from a lofty viewpoint, such as "this is how the machine tools of the future should be." When developing new models or considering variations, many companies consider product lineups by referring to statistical data on the target markets. Our approach is a little different. While we refer to such trends from a macro perspective, we base our actions on the voices of our actual customers, such as existing users and those we have consulted with or received inquiries from.

This would be along the lines of discussions based on comments such as, "I remember Mr. B from A Industry telling me about this issue," or "I heard about this request from Mr. D from C Manufacturing..."

We put such specific customer requests first, and want to make machines that can meet customer expectations. For this reason, we listen thoroughly to our customers. For example, if there is any ambiguity or lack of understanding in the opinions that the sales department has captured, the R&D team will ask again to clarify what the customer is trying to do. Or in other words, we grasp customers' true needs and objectives.

First of all, we must provide products that will be helpful in solving the problems of customers who have raised concerns about their processing processes. This is the basic premise. Then, if necessary, we will conduct market research and develop a product lineup that can be offered to and appreciated by other customers.

We take a thoroughly bottoms-up approach from the customer's perspective to develop products that meet their specific needs while keeping their faces in mind. I believe this is the foundation of our R&D activities.

Makino Design Concept

How can we increase the productivity of R&D work? In recent years, we have approached this theme from two angles.

The first is the Makino Design Standard. In the past, variations in design standards were accepted at different production sites and for different models. This meant the superior design know-how possessed by individuals and specific departments was not fully shared by the entire organization as common knowledge. We are steadily promoting the standardization of design standards Companywide. This is done not only from the perspective of asking questions such as "how many years is an appropriate life span for a certain part," but also in terms of instilling excellent work practices throughout the organization. The other is a new R&D method called Makino Modular Architecture. In the past, separate units were designed for each model, and these units were combined to complete a machine.

By modularizing them into a very well-organized unit that maintains backward compatibility, we are able to plan several models simultaneously and in parallel.

Although I mentioned at the beginning that this is to improve development productivity, this initiative is naturally also directly related to improving the productivity of manufacturing and service operations. We will continue to take on further challenges to improve our reputation with our customers and offer them greater peace of mind.

Intellectual Capital

Application Message



Steadily cultivating expectations and trust that consulting with Makino will lead to results

Jun Kanaya
Executive Officer
Executive Manager of Customer Application Center

One of the features that distinguishes Makino from the competition is our Customer Application Center (formerly the Application Technology Division).

This center is tasked with responding to customer problems and requests, while offering both tangible and intangible support.

When customers face challenges related to machining or are troubled by setbacks, it can be difficult to identify optimal solutions. Sometimes, the issue involves selecting the right machines or tools. Other times, issues may be resolved by specifying more appropriate machining conditions. It is also possible that mechanical malfunctions are preventing the achievement of desired results.

If challenges are due to limitations in terms of machine capacity and functionality, the solution may be to customize or add options, which if difficult, may necessitate the R&D of new machines.

Customers know what they want to do and what challenges need to be overcome, but what options are available to address these challenges? Depending on the issue, this may not be easy to correctly identify. The Center's function is to ascertain customer problems and receive customer requests, then present and propose methods leading to solutions, including required costs and timeframes for achieving solutions and providing implementation support. To this end, we must cooperate and collaborate with the Sales and R&D Divisions, as well as the Service and Production Divisions, as necessary.

Some projects require considerable effort and time, so the Center is staffed with personnel who possess a variety of skills. Based on information from Sales, staff members with expertise in specific fields are assigned to projects, often with more than one employee responsible for executing operations.

Makino dispatches resident officers to major overseas bases to facilitate communication with local staff and monitor market trends, leading to the development of personnel dispatched overseas.

When consulting with customers, we are sometimes asked about new technologies, so simply being familiar with our own machines is not enough. Thus, we proactively communicate and interact with universities, research institutes and peripheral equipment manufacturers to attain new information and knowledge. This is something other companies are also engaged in. However, this center is Makino's unique organization that serves as a comprehensive point of contact for customer technical inquiries and provides seamless support in collaboration with Sales and R&D. When exploring solutions, we often go beyond divisions to bring together technologies and knowledge. We also occasionally propose methods that leverage existing Company patents, and at other times, we develop new functions or obtain patents in the search for a breakthrough.

Most importantly, we want to cultivate customer expectations and confidence that consulting with Makino will lead to results. This will inevitably lead to customer satisfaction, which in turn will further elevate our business.



[Electrical Discharge and Laser Machining]

Processing Message



Aiming to support more complex machining in response to customer requests

Masataka Kido
Executive Officer
Executive Manager of LASER-EDM Business Division

The LASER-EDM Business Division develops and manufactures laser machines and electrical discharge machines (EDM).

For customers engaged in machining that is difficult to handle using only a machining center for cutting, Makino expanded its range of proposals with the R&D of numerical control (NC) wire EDMs in 1979, and NC sinker EDMs in 1980.

We are enhancing our product lineup in line with customer machining requirements.

Responding to the needs of customers taking on the challenge of machining ceramics and other materials difficult to handle using only machining centers or EDMs, we made full-scale entry into the laser machine market.

The LB300 and LB500 (See P. 20) are noteworthy for combining lasers and water to control heat created when laser machining.

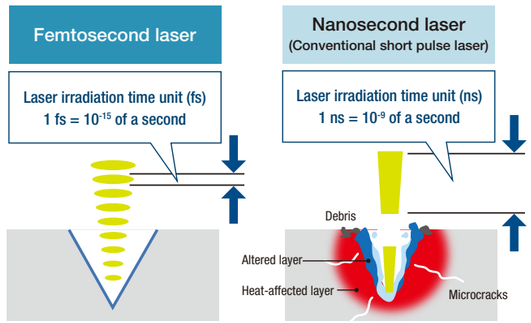
In 2022, we launched sales of the LUMINIZER LF400 ultrashort pulse laser machine, which uses a femtosecond laser*1 with an extremely short irradiation time, offering the advantage of being able to machine microscopic shapes with higher quality compared to conventional nanosecond lasers*2.

Although each machine has different features, they are equipped with high-precision positioning and other Makino technologies. In addition to machining centers, we will continue to advance business so that we can flexibly respond to various customer requirements using laser machines and EDMs.

*1. 10^{-15} of a second.
*2. 10^{-9} of a second.



Difference Between Femtosecond and Nanosecond Lasers



Glossary of terms

Machine tools
Machines that remove unnecessary parts of metal to create required shapes. Machines that are automatically operated using computers or other equipment are called numerical control (NC) machine tools.

Most Makino machine tools are NC machine tools. A wide range of machines and their constituent parts are made using machine tools, which are also known as mother machines.

Machining centers
Machines used for various types of cutting (boring, milling, drilling, etc.) performed mainly using rotating tools equipped with an automatic tool changing function.

Horizontal machining centers have a horizontal spindle for rotating tools, while vertical machining centers have a vertical spindle.

Electrical discharge machines (EDM)
Machines that use electrical discharge energy for machining are divided into sinker EDMs (Makino NC EDMs), which transfer the shape of an arbitrary electrode onto a workpiece, and wire EDMs, which use a wire as the electrode and machine like a jigsaw.

EDMs are used to machine hard materials that are difficult to cut and machine thin, deep grooves and other shapes.

Laser machines
Machines that use laser energy for cutting and drilling, often used for the high-speed cutting of sheet metal.

Makino laser machines are capable of processing ceramics and other materials that are difficult to process by cutting or electrical discharge machining.

5-axis machining
Machining method using a machine with three axes (X, Y, and Z) for linear motion and two additional rotary axes for turning motion.

This method realizes the machining of complex shapes that are difficult to machine with 3-axis controls, shortens machining time and improves machining accuracy.

Turning
Method in which a cylindrical or disk-shaped workpiece is rotated and a tool called a bit is pressed against it to machine (outer rounding, facing, taper cutting, etc.).

CAD/CAM
Acronyms for computer-aided design and computer-aided manufacturing. At Makino, CAD refers to software for designs created using computers, while CAM refers to software that automatically creates NC programs for machine tools to process according to design drawings created using CAD.

A New Dawn for the World

Makino Machine Tools Boast High Precision and Quality

Makino has developed products respectively equipped with different features in response to feedback from customers taking on various challenges, including changes in materials to be machined and manufacturing locations, as well as the pursuit of higher productivity.



V90S

Realizes simultaneous 5-axis machining of die and mold parts

5-axis machining center

V80S / V90S

Electric vehicles (EVs) are attracting attention, with model variations and production volumes expected to increase. As EVs are equipped with heavy batteries, steel component materials are being replaced with plastic to reduce vehicle body weight. Environmentally friendly (processed) products are also on the rise, including plastics derived from biomass and biodegradable resins, and products without paint. Makino anticipates an increase in demand for molds used to make these plastic parts going forward.

V80S and V90S were developed to improve productivity in machining large dies and molds. Compared to conventional 3-axis machining, simultaneous 5-axis machining realizes machining of the sides of a workpiece using a single machine, thereby eliminating machining processes. As the tool can also be tilted for machining, its features can be fully utilized and tool life extended, leading to improved productivity (see image below).

However, the greater the number of axes operating simultaneously, the more likely it is that control misalignment will occur. Even the slightest misalignment will leave scratches on the workpiece, which must be manually corrected after machining. For these reasons, the use of simultaneous 5-axis machining has been avoided in the machining of dies and molds, which require smooth surface machining.

Having improved our machines in terms of hardware and software to realize higher levels of control has enabled Makino to achieve unscratched machining even when using simultaneous 5-axis machining. This has led to customers now considering the use of simultaneous 5-axis machining of dies and molds. We expect the V80S and V90S to play active roles in customer manufacturing facilities engaged in enhancing the productivity of die and mold machining.

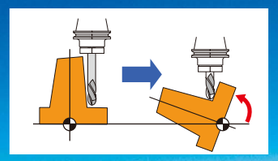
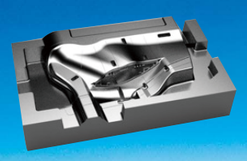
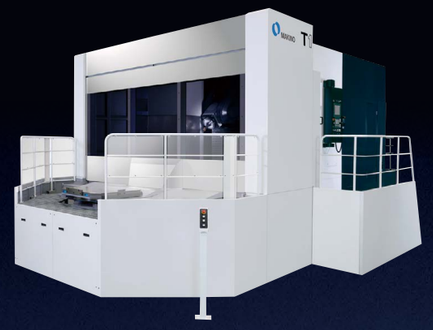


Image: Tool and workpiece are tilted for machining



Automobile inner door mold



Turning function added to conventional T1 supporting advanced, diverse machining

5-axis horizontal machining center

T1 turning specification

Since 2009, Makino has marketed the T-Series (T for titanium), leveraging strengths in the machining of materials that are difficult to cut, including titanium alloys, nickel alloys, stainless steel and other materials commonly used for aircraft parts. In 2013, the T1 simultaneous 5-axis horizontal machining center (MC) was added to the lineup, leveraging strengths in the machining of aluminum alloys in addition to the aforementioned difficult-to-cut materials. T1 turning specifications were developed in 2021 in response to customer requests for the ability to turn workpieces when machining on the same machine, while maintaining the conventional strength of machining titanium and aluminum.

This machine achieves both milling and turning of various materials, including difficult-to-cut materials. In the past, workpieces that required milling and turning had to be transferred to multiple machines. Both processes can now be performed on a single machine, eliminating the need for set ups and measurements required for multiple processes. In addition to being equipped with a newly developed table unit realizing high rigidity and 300 rpm, it includes a cooling function to prevent accuracy errors caused by heat.

With the evolution of automobiles known as CASE and the incorporation of AI in various devices, the need for semiconductors is expanding beyond computers and smartphones into new areas amid growing performance and volume demands. Makino products can be applied in the aerospace field, where they have been used to great advantage in the past, as well as in the semiconductor manufacturing field, where demand continues to rise.



Semiconductor manufacturing equipment component



Improving the efficiency of aircraft engine blade machining

EDM hole drilling machine

BX3

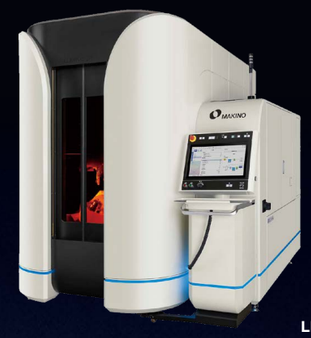
In the field of aerospace manufacturing, leading companies are in competition to develop engines that burn at higher temperatures to improve fuel efficiency during flight. The turbine blades (moveable) and vanes (fixed) located behind the combustion chamber (exhaust side) must be made of an alloy with high heat resistance performance (nickel alloy), requiring many small holes to improve cooling performance. Further, the small-diameter hole spouts are not straight but fan-shaped (diffusers).

EDMs, which utilize the electrical discharge phenomenon that occurs between electrodes and workpieces, are an effective method for machining difficult-to-machine alloys. Up to now, small-diameter holes have been machined using EDM hole drilling machines, and diffusers have been machined using general NC EDM machines. In 2012, we developed the EDBV3 small-hole EDM machine dedicated to more efficient machining. Using inexpensive, standard tube electrodes, the EDBV3 is able to quickly and efficiently machine small-diameter holes and diffusers.

The BX3 was developed in response to user needs for more efficient parts production in response to further growth in aircraft demand. It realizes space-saving, automation and operational optimizations that shorten the time required for processing and enable expanded mass production. In manufacturing aircraft parts, the type of machine and processing must be certified in advance before being used in production. The BX3 is used at manufacturing sites in the aerospace industry, where these strict production controls are required.



Aircraft engine component



LB500

Advanced laser machines compensate for milling and EDM process weaknesses

Laser machine

LUMINIZER LB300 / LB500

Up to now, Makino's business has centered on milling—in other words—machines used for cutting. Needless to say, cutting requires the use of tools that are harder than the workpiece being machined. Electrical discharge machining (EDM) is an effective option, but workpieces must be metal, hence ceramics, diamonds and other non-metallic materials cannot be machined. As materials used in various industries become more diverse, other methods are increasingly necessary. Makino entered the laser machine business in 2020 to provide options meeting these needs.

The LUMINIZER LB300 and LB 500 were the first models we launched. These two products use the phenomenon of total reflection of light at the boundary between water and air to irradiate the laser beam onto the workpiece to be processed by passing a laser beam through the water column of a water jet. This simplifies the processing of ceramics and other hard materials. The use of water jets reduces thermal effects during processing and efficiently removes processing debris.

These products can be used for processing state of the art materials used in the semiconductor, aerospace, and medical industries. Silicon carbide and gallium nitride are attracting attention as power semiconductor materials effective for efficient power control, ceramic matrix composites (CMC), a lightweight material used in aircraft engines, polycrystalline sintered diamonds (PCD) and cubic boron nitride (CBN), used as ultra-high-pressure sintered tools in machine tools, and nickel-titanium alloys (shape memory) used as medical stents (devices used to expand tubular parts inside the body).



SiC material machining

Makino Core Competencies

Social and Relationship Capital



Building long-lasting relationships of trust with customers

Yukihisa Takayama
Executive Officer
Executive Manager of Sales Division

Three key points needed to sell products



Our sales department is not the only touchpoint we have with our customers. Staff is placed worldwide according to role. For example, engineers at the Customer Application Center provide support in the area of machining technology and field service engineers visit customers for repairs. While sharing necessary information with the group, we have built a structure that allows us to respond to customer problems and concerns in detail.

Sales
We deploy sales staff close to customers around the world who listen to customers' problems.

Service
Service engineers help customers keep their machines running at their best. With this in mind, they install products, perform repairs and preventive maintenance.

Customer application (application technology)
This department serves as a touchpoint for technical inquiries from customers. It also reviews the details of the workpiece that the customer wants to process, provides estimates, and performs test machining.

Relationships of trust with customers fostered throughout the entire service life

Since its founding as a small local factory, Makino has been developing machines and functions to help solve its customers' problems. Today, the automotive, semiconductor, and a myriad of other industries are facing unprecedented changes. To address these changes, our sales people are working to change their mindset so that they can broaden their perspective and make proposals that are wider in scope and more satisfactory to our customers by looking at their contacts with them in a holistic manner rather than just specific points.

Meanwhile, a unwavering characteristic of Makino is the spirit of being challengers who tackle difficult requests from customers head on and work together with them to create something novel or something better. Our priceless asset is the trust we have built with our customers by producing results without shying away from even the toughest challenges. No matter what the era, placing the utmost importance on the relationship of trust with our customers is essential to enhancing our corporate value.

The novel coronavirus (COVID-19) pandemic and the progress of digitalization have brought about significant changes in our sales style. Seminars to highlight the value and attractiveness of the machines are now conducted online as a norm. While it is more difficult to grasp customer reactions than with face-to-face events, on the other hand it is easier to gather information about them. In light of this situation, when we receive an inquiry not only is front-line sales involved with specific negotiations and proposals with the customer, we have also organized an internal sales force that is responsible for the information-gathering stage before the inquiry is received. We are building and managing a structure to increase the number of business negotiations without relying on individual talent, such as communication with prospective customers using Robotic Process Automation (RPA) tools, distribution of online content to spark interest, and surveys of customers who already have our products installed. It is gratifying that Makino machines are being used with care and for a long time at many of our customers' production floors. In fact, many of our machines that are 20 or 30 years old are still in service. The engineers at the customer application center help bring out 100% of the performance of our high-speed, high-precision machines in terms of machining technology, and our service engineers support stable machine operation through after-sales service. The entire group pursues high customer satisfaction not only at the time of purchase, but also during the entire service life of our products.

Topics

Strengthening relationships with suppliers

In response to the recent disruptions in parts procurement, we are taking measures mainly for mechanical parts, such as clearly stating precautions that are easy even for new suppliers to understand and providing samples of good products. In recent years, we have also established a department to advance the "Makino Design Standard" (see page 16) and are gradually working toward the unification of terminology and blueprint notations and the sharing of parts to the extent feasible. As more parts are shared, the volume of orders per part will increase, and suppliers will be able to improve production efficiency by preparing dedicated jigs and tools. We will pursue win-win relationships with our suppliers by promoting these initiatives.

Message

Field service engineers conduct repair and maintenance activities on the front lines



Kazuhiko Matsunaga
Executive Officer
President of Makino Technical Service Co., Ltd.

Field service engineers visit customer sites where machines are in operation to perform repairs and inspections. We focus on training and education for them since their techniques and skills are pivotal to the reputation of the Makino Group. We handle more than 20,000 cases of operation per year, of which more than 30% are models that have been in use for more than 20 years. At times a young service engineer may encounter a machine they have never handled in the field. In such cases, technical staff on call at the IoT Center provide the necessary support remotely by checking images sent from a body camera placed on the service engineer*. This contributes to swift work and the acquisition of techniques and skills through on-the-job training.

The COVID-19 pandemic has made it difficult to travel and handle inquiries from overseas in person. Therefore, to enhance our remote support, we have increased web conferencing opportunities and began 24-hour support in March 2021 to respond immediately to inquiries.

In 2020, we launched an automated warehouse (Global Parts Center) equipped with 45,000 types of maintenance parts. In addition, the deployment of twin-armed robots for picking work and autonomous forklifts has produced significant labor savings. Through continuous improvement and innovation, we will continue to fulfill our motto: "an irreplaceable machine for our customers backed with our full strength."

* We are mindful of security and utilize this method only with the approval of the customer.

Focusing on preventive maintenance to achieve uninterrupted machine operation



Since there is no legal inspection system in place for machine tools, many customers used to feel that they only need to repair a machine after it breaks down. In recent years however, more customers aim to avoid sudden machine stoppages to the extent possible, and are mindful of the impact on their own customers and the supply chain as whole. To address such needs, we have been focusing on preventive maintenance for about four years now.

Apart from annual inspections, we will make proposals such as "Let's do this kind of inspection as well." We provide information on issues identified, including the countermeasures to be taken. We also recommend measures that lead to energy savings, such as the adoption of LED lighting and so on. In this way, we are building a structure to support the creation of customer workplaces where stagnation and delays in production do not occur.

Makino Core Competencies



Manufactured Capital

Aggressive and Bold Capital Expenditure Plans Focused on Japan and Asia

In fiscal 2021, Group capital expenditures amounted to ¥9.1 billion (up 44% year on year).
In fiscal 2022, we are planning capital expenditures of ¥14.2 billion (up 56% year on year) for production equipment at a new plant in Wuhan, China, and the expansion of a jig plant in Coimbatore, India.
We also plan to make substantial capital expenditures in Japan over the next five years.

Makino production method changes and strengths

Traditionally, cell production was the primary method used in the machine tool field, whereby a single craftsman assembled the most important components, such as beds, columns, and each functional component to improve accuracy. This method presented problems in the mass production process, as variations in accuracy were common between craftsman.

About 30 years ago, in developing new mass production machinery, we converted cell production to a dispersed production process to focus on quality stabilization.

Production was divided into 10–15 smaller processes, with the same work repeated to increase the level of operator efficiency.

The next major turning point was when Makino received a large order for several hundred units of this machinery from leading U.S. tech companies. To achieve further process dispersion, assemblies comprising a combination of multiple parts were further divided into subassemblies in an attempt to simplify process so that individual workers were only involved in specific processes. At present, we are expanding this method to all models.

In line with the degree of difficulty in work process, we also separated tasks into those that anyone can perform and those that require specific skills. Although the latter comprises approximately 20% of total processes, we encourage all employees intent on becoming true craftsman to take on this challenge.

A major difference between Japan and other countries is the mobility of human resources. As mentioned above, we restructured our production system so that employees can quickly acquire skills, and in transferring this method to overseas production bases, we have been able to ensure stable production activities, even at overseas manufacturing bases, with low human resource retention rates.





Production developments in Japan and Asia focused on legal systems and marketability

Makino manufactures products in Japan and Asia (Singapore, China, and India) for customers who process molds and components requiring high precision, reliability, and productivity.

In Japan, we mainly manufacture machining centers (MC), including 5-axis machines, electrical discharge machines (EDM), and laser machines.

In Singapore, our Asian subsidiary, Makino Asia Pte Ltd, primarily manufactures independently developed MCs and EDMs.

In Kunshan, China, we manufacture EDMs, with nearly all products manufactured shipped to customers in China. In Wuhan, we also manufacture MCs developed by Makino Asia.

In India, in addition to MCs developed by Makino Asia, we manufacture peripherals and jigs for automation.

Products and technologies developed in Japan that exceed specified levels of precision or include specified functions have strict requirements for export to certain countries in line with the Foreign Exchange and Foreign Trade Act. Makino complies with this act while expanding the range of products we can provide.



Message

As times change, so do the ways in which technologies and know-how are transmitted

Tatsuaki Aiba
Executive Vice President, Director
Executive Manager of Production Division

Makino manufacturing began in a small workshop in Tokyo. There was no such thing as a manual, partly because product quality was enhanced by traditional craftsmanship, which is how we earned customer trust. Subsequently, we have sought to increase production volumes and stabilize quality through process dispersion.

While no division can easily cultivate human resources, the development of human resources in the Production Division is also an ongoing process of trial and error. Unlike the old days, when work was learned by watching more experienced employees, manuals are indispensable. However, it is by no means the case that having a manual will ensure work is done skillfully. Patient instruction sparing time nor effort is the only way to achieve this.

Generation gaps are one of the major factors that make the transfer and transmission of know-how and skills difficult. Although Makino provides various mechanisms to increase the effectiveness of training, the younger generation does not always readily accept them.

Rather than being overconfident that current methods are best, we must make improvements to the system itself going forward.

It is also important to have a system that nurtures leaders in each generation. If Makino can become an organization that creates leaders every five to 10 years who lead reforms, we can evolve into a robust manufacturer that learns from traditional knowledge while taking on the challenge of new methods.

Topics

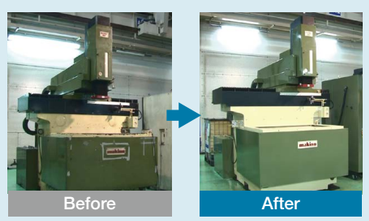
Realizing long-term product use

At present, more than 50,000 Makino machines are in use at customer sites around the world. Many of our machines have been at the forefront for more than 30 years. We sometimes receive requests for overhauls and retrofits* from customers who want to continue using their machines.

As mechanical components are made of metal, they can be rebuilt even when damaged, as long as drawings are available. A machine's life can also be extended using new components. At the same time, depending on the manufacturer, electrical component warranties are limited to a period of 10 years, hence they are sometimes difficult to obtain. Depending on the situation, the R&D Division may design new circuits or leverage the capabilities of outside experts while providing support, enabling customers to continue using machines for as long as possible.

Note: Retrofit means modifications adding new technologies or functions to old machines.

Overhaul



Financial Capital



The basic function of a business is providing goods and services that meet the needs of customers.
The basic function of financial strategies is establishing a foundation for R&D, production, sales, and service that provides for the continuous, stable delivery of those goods and services.

Toshiyuki Nagano
Executive Vice President, Director
Executive Manager of Corporate Service Division

The business environment for Makino has become increasingly severe, including rising costs for materials, and more pronounced geopolitical and climate change risks. Under the new leadership structure, led by President Miyazaki, Makino is steadily implementing strategies to support growth over the longer term to achieve sustained increases in enterprise value.

Review of fiscal 2021

Consolidated net sales in fiscal 2022 (ended March 31, 2022) amounted to ¥186,591 million (up 59.8% year on year), with operating income of ¥11,300 million, ordinary income of ¥14,274 million, and net income attributable to owners of the parent of ¥12,042 million. Orders received increased sharply from the previous fiscal year, reaching ¥228,960 million on a consolidated basis (up 95.0%). Amid the general positive trend for orders with the resumption of economic activity following the effects of the COVID-19 pandemic, Makino received an additional boost from the implementation of various sales tactics and a focus on proactive strategies to win orders, which along with the approval of projects from the previous fiscal year that had been postponed, resulted in record high order volume. Earnings also rebounded from losses in the previous fiscal year, with Makino making capital expenditures in line with its initial spending plan, while recording operating income of ¥11.3 billion, and ordinary income of ¥14.2 billion. The year-end order volume increased by more than ¥40.0 billion from a year earlier.

Despite difficulties obtaining components in fiscal 2021, by altering design specifications to accommodate replacement parts, Makino was able to avoid any significant delays in delivery. The overall market is changing considerably, and while we expect the difficult circumstances to continue going forward, by focusing on strict management for delivery of components, we will work to ensure delivery to customers remains on schedule.

In response to rising procurement costs, Makino is revising its entire production process, and analyzing man-hours and costs in an effort to reduce expenses overall. An additional measure is adjusting sales prices to reflect higher costs. Exchange rate fluctuations are having an impact, but we are revising sales prices in Japan and the Asia region. We are also working with customers to ensure we maintain an appropriate level of profit.

(Millions of yen)	FY2020 (April 1, 2020 to March 31, 2021)	FY2021 (April 1, 2021 to March 31, 2022)	Variance (% change)
Net sales	116,737	186,591	69,853 (59.8%)
Operating income (loss)	-3,612 (-3.1%)	11,300 (6.1%)	14,912 (–)
Ordinary income (loss)	-1,374 (-1.2%)	14,274 (7.6%)	15,649 (–)
Net income (loss) attributable to owners of the parent	-2,703 (-2.3%)	12,042 (6.5%)	14,746 (–)
Exchange rate, against USD	106.06	112.38	
Exchange rate, against EUR	123.70	130.56	
Exchange rate, against SGD	77.65	83.33	

Financial policy

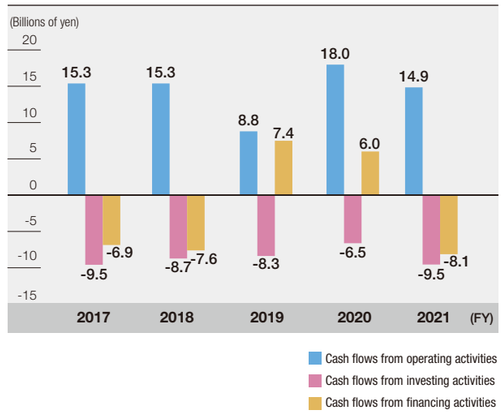
Investment in plant and equipment is one of the most important factors for a manufacturer, as sustained investment is essential to increase productivity. Such investment also helps create a better work environment for employees and facilitates automation.

In Japan, Makino is planning major investments over the next five years. Overseas, we expect to make additional investments in Wuhan, China and Coimbatore, India.

The growth of the global population and rising living standards is expected to drive expanded production of consumer goods and durable consumer goods, as well as the industrial goods used to make them.

Rising demand is anticipated for robots in nursing and medical care, as well as for artificial joints, artificial bones, and implants in the medical field, while in the automotive sector, the transition to electric vehicles is expected to continue worldwide. Since manufacturing all of these goods will require machine tools, we expect demand to continue to rise, and will make sufficient investments to respond to these needs.

Cash Flows



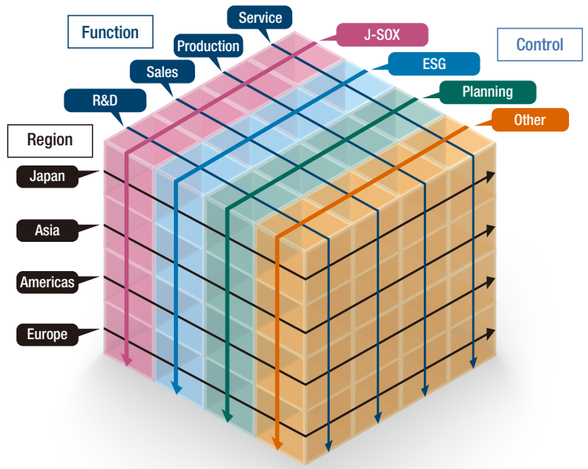
Global operations

A total of 75% of Makino's sales are outside Japan. As global business development progresses, appropriate and timely management decision-making at overseas subsidiaries will become increasingly important.

Accordingly, a key feature of the main executive divisions at overseas subsidiaries is that they comprise local personnel, and have broad authority to make ordinary business decisions.

In addition, head office divisions, including sales, R&D, production, service, customer application, and finance, hold meetings with local management divisions on a regular and ad hoc basis to exchange information, confirm the progress of business projects, and exchange opinions. This arrangement provides an optimal management structure for the corporate group.

Further, the head office president and all senior executives serve as board members of local subsidiaries, ensuring the proper conduct of governance through reports on the progress of quarterly plans, problems, and management issues, as well as approving investment projects based on regulations.

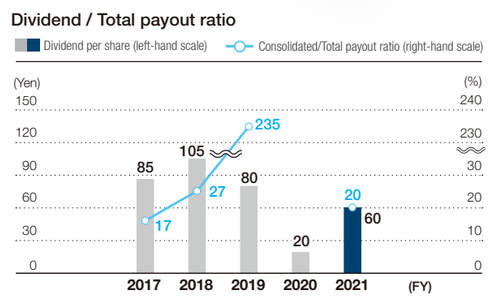


Shareholder returns

Makino's basic policy is to return profits to shareholders through stable, regular dividends. In fiscal 2021, the Company paid a dividend of 60 yen per ordinary share. Looking back over the past decade, this represents a total payout ratio of around 27%. Going forward, we will continue to provide regular, stable shareholder returns.

* The dividend figure for fiscal 2017 has been adjusted based on the consolidation of common stock (5-to-1) conducted on October 1, 2018.

Dividend / Total payout ratio



ESG Initiatives

Makino embodies the diverse evolution of customer manufacturing through machine tools, contributing to the realization of a sustainable society.

From automobiles and aircraft offering improved energy efficiency through weight reductions, to medical devices that contribute to better health and satellites that operate in space, the various products manufactured by our customers are helping to create a better environment and society. Machine tools are used in the manufacturing of these products.

Production systems that utilize superior machine tools assist customers in improving production efficiency, which in turn supports contributions to a better environment and society.

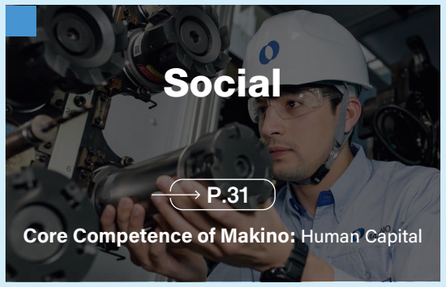


Reducing energy consumption is an important issue for machine tool manufacturers

Machine tools consume a lot of energy when they are manufactured and used by customers after delivery. Makino believes it has a responsibility to the environment to reduce energy consumption, which rises as sales of machine tools increase.

Development of energy-saving technologies and in-house manufacturing initiatives

Makino develops application technologies enabling customers to use machine tools more efficiently, which leads to energy savings. At the same time, we continue to improve production at our own factories to manufacture machine tools using less energy.



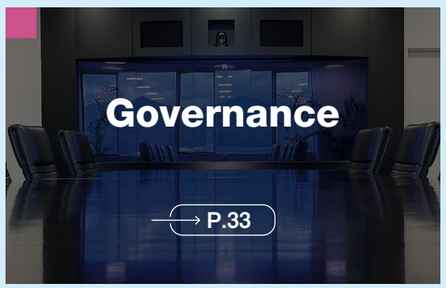
Cultivating engineers required for advanced machine tool manufacturing

Makino sees its mission as developing human resources able to play a role in creating a sustainable society by improving industrial infrastructure so that more people can use better machine tools.

New R&D projects through industry-academia collaborations, contributing to society through global activities

Makino conducts R&D on new technologies through industry-academia collaborations. We also cultivate engineers around the world through the expansion of bases for spreading the use of machine tools.

To further promote business activities, we are making efforts to improve the working environment for all employees.



Makino conducts business in accordance with the following Basic Policy on Corporate Governance.

1. We take appropriate measures to ensure shareholder rights and equality, and strive to improve the management and supervisory environment to ensure the proper exercise of such rights.
2. We strive to appropriately collaborate with various stakeholders, contributing to the enhancement of corporate value over the medium to long term.
3. We strive to ensure appropriate information disclosure and transparency to provide accurate and easily understandable financial and non-financial information to users.
4. We strive to appropriately fulfill the roles and responsibilities of the Board of Directors to contribute to the enhancement of corporate value over the medium to long term.
5. We strive to engage shareholders in constructive dialogues to contribute to the enhancement of corporate value over the medium to long term.

MAKINO SDGs VISION

for My Home Planet



SUSTAINABLE DEVELOPMENT GOALS

Makino contributes to realizing a sustainable future in which people involved in machine tools can grow together while carefully nurturing bonds between people like a family.

Three Activity Themes

1 Bonds between people

What we can do to build better relationships between people

For addressing various social issues from a broader and larger perspective, the world needs to work together. What is necessary here is to expand the circle of bonds in which each individual feels happy and is connected with deep trust. Makino will carefully nurture the connections between people developed through machine tool manufacturing for the future.

2 Makino's *Monozukuri*

What we can do to create sustainable machine tools

We are continuously improving our production system to manufacture machine tools with less energy at our plants.

In addition, we are making various efforts to create a human-friendly work environment in which all employees can work safely, comfortably, and with satisfaction.

3 Connections with customers

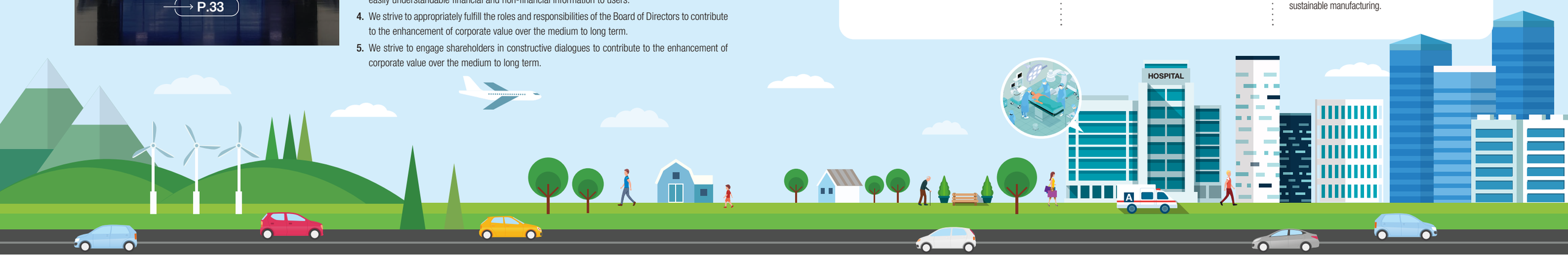
What we can do for our customers' manufacturing

MAKINO Production System

The various products that our customers create help all of us realize a better environment and society.

With sophisticated machine tools and production systems used in their manufacturing, Makino contributes to the production efficiency of our customers and the related environmental impacts.

In addition, we will promote the development of machines and services that are easy for everyone to handle while also helping our customers achieve sustainable manufacturing.



Makino Core Competencies

Natural Capital



Contributing to carbon neutrality through the creation and provision of superior environment friendly machine tools

As a manufacturing company, Makino is required to reduce emissions and waste at our factories. With regard to greenhouse gas (GHG) emissions in particular, we set a target for reducing CO_2 emissions (non-consolidated basis, Scope 1 and 2) by 38% compared to 2013 by 2030, then to zero by 2050.

Another important issue we recognize is the development of products with higher energy-saving performance. Since customers use many of our machines over the long term for daily manufacturing activities, enhancing the energy-saving performance of Makino products will have a substantial ripple effect.

These activities are led in-house by the Sustainability Promotion Office and promoted through collaborations with related internal organizations.

Environmental policy

Makino will always give consideration to the environmental impact of all processes in which our products are produced and used by customers to build societal trust.

In accordance with this environmental policy, we will carry out the specific activities mentioned below.

1. Press ahead with energy and resource conservation
2. Press ahead with waste reduction
3. Offer products with low environmental impact
4. Comply with laws, regulations and voluntary controls
5. Prevent environmental pollution
6. Continue to enhance the environmental management system
7. Build awareness of environmental conservation

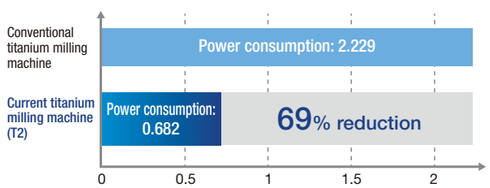
Development of products that contribute to the environment

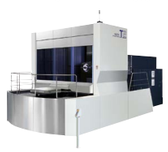
Materials used in machines must be both light and rigid enough to meet standards required for components and functions. In addition to cast metals, ceramics and titanium are also potential candidates. If moving parts are lightweight, they can be operated using a small motor. If motors are smaller, they will consume less energy and emit less CO_2. The same effects can be achieved by reducing machining time and improving yields.

The development of machines optimized for specific materials is another effective approach to realizing energy savings. Titanium is considered difficult-to-machine, but Makino has developed products specifically for machining titanium materials that achieve significant improvements in cutting efficiency compared to conventional products.

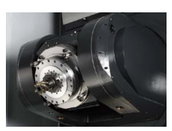
Going forward, we will continue to develop and propose optimal energy-saving products in response to customer needs.

Power consumption per unit of chip removal (titanium milling)





5-axis machining center (T2)



Main spindle (T2)

Efforts targeting the realization of a decarbonized society

In addition to the development of products that consume less power, Makino is also working to reduce its environmental impact by utilizing and upgrading energy-efficient factory equipment, creating and caring for greenery at factory sites and surrounding areas and installing solar panels. The use of LEDs reduces the amount of heat generated, contributing to lower air conditioning and lighting costs.

In June 2022, Makino received the Special Prize at the Logistics Environment Award sponsored by the Japan Association for Logistics and Transport for Makino's round use initiatives promoted together with partner companies. Going forward, we plan to introduce storage batteries to make effective use of electricity generated by solar panels on days when factories are not in operation.



Atsugi Office, Factory No. 3 (Kanagawa Prefecture)
Solar power generation 783,660 kWh (FY2021)



Kobe Technical Center (Hyogo Prefecture)
Solar power generation 59,000 kWh (FY2021)

Long-term goals	38% reduction in 2030	100% reduction in 2050

Efforts to reduce greenhouse gases (GHG)

Makino is engaged in the following efforts with the aim of realizing carbon neutrality by 2050.

Governance

The Board of Directors approves major investment plans aimed at reducing environmental impacts, receiving reports and deliberating the implementation status of these plans as appropriate. In the event serious environmental risks materialize or are very likely to occur, the Board receives reports on each risk and discusses the status of responses. Makino selects a General Manager of Environmental Management from management ranks with the authority to formulate and review environmental policies, prepare and provide management resources necessary for the establishment, maintenance, implementation and management of the Environmental Management System (EMS), and appoints a person in charge of steadily implementing the EMS.

Strategy

Makino identified climate-related risks and opportunities with the potential of impacting business, strategies and financial plans in the short, medium and long-term based on multiple scenarios, with one assuming a 4°C temperature increase relative to pre-industrial times and the other assuming a limited temperature increase of 1.5°C. The following are risks Makino believes have the potential to significantly impact business.

- Transition risks: • Ongoing GHG emissions pricing, stricter energy conservation policies, mandates and regulations on existing products and services, and rising raw material costs in response to GHG emission reductions.
- Physical risks: • Increased severity and frequency of cyclones, floods and other extreme weather events.
- Opportunities: • R&D and expansion of low-carbon products and services.

Risk management

The Risk Management Promotion Office compiles and prioritizes manifested risks. The Board of Directors focuses on legal reform trends, the results of management reviews and other information as risks that must be addressed from a Company-wide perspective, then presents them to each division. Executive managers in each division select major risks to be addressed, taking into consideration risks prioritized from a Company-wide perspective and risks identified in their division. They establish response policies and conduct risk mitigation, which includes monitoring and measurement activities. A portion of the results of these efforts are disclosed on the Makino website. The Environmental General Manager summarizes environmental activities conducted during the year and conducts management reviews. In addition to sharing findings with each division, the Risk Management Promotion Office reflects findings related to key risks from a Company-wide perspective and reports them to the Risk Management Committee. In the event of a particularly important risk issue, the details are reported to the Risk Management Committee for discussion as necessary.

Metrics and targets

To achieve carbon neutrality (virtually zero greenhouse gas emissions) by 2050, we set a target for CO_2 emissions reductions (non-consolidated basis, Scope 1 and 2) of 38% compared to 2013 and are engaged in initiatives to achieve this goal.

Efforts to reduce environmental burdens

Makino has acquired ISO 14001 certification, establishing a management system with a work flow that encourages the recycling of materials. In addition to separating and reusing paper and plastic, steel and aluminum materials are sent to scrap dealers, and discarded uniforms and safety shoes are picked up by collection companies for reuse.

The amount of water Makino uses is very small, mainly limited to facility maintenance. Coolants, which are liquid mixtures of water and chemicals, are used to cool tools and flush out chips. Coolants are reused to the extent possible, then disposed of in an appropriate manner.

Chemical substances used in machine components are managed appropriately using a database in accordance with applicable regulations.

Makino also has a system in place to respond to inquiries regarding REACH and RoHS regulations through overseas subsidiaries.

Human Capital



Solidifying our foundation as a global company with human resource policies that respect human rights and diversity in all aspects of hiring, training and treatment

Makino considers employees to be both resources and capital. To provide high-precision, top-grade machine tools to customers and markets, our human resources are tasked with passing on knowledge accumulated over the years in R&D, manufacturing, sales and services, with the aim of creating even higher-value products. In building relationships with human resources. We aim to attract a large number of talents who appreciate Makino as a company where their curiosity and inquisitiveness can be satisfied, and their technical skills can be honed to provide the best customer satisfaction and value add. We want to establish such relationships with our people in this way hence striking a long-term balance between employee relationship and business development.

Human resource development and internal environmental improvement policies

1. To realize a virtuous cycle in which employee growth leads to Company growth and growth of the Company further promotes employee growth, Makino provides various employment growth opportunities for career development and skill enhancements.
2. Makino will endeavor to provide a working environment that embraces different values to continue creating innovative products and services that can respond to various challenges faced by our customers.

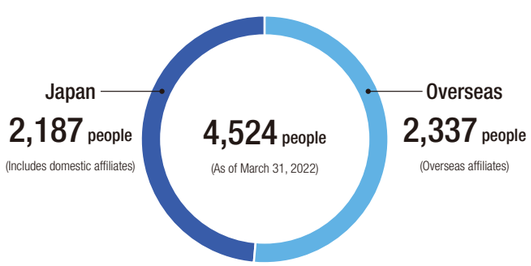
Human rights initiatives

The Makino Group is a multinational corporation with approximately 2,300 foreign national employees, which outnumber Japanese employees. Overseas bases manage employees in accordance with laws, systems, and practices in the countries where they operate.

Many foreign nationals also work in Japan. Internal rules and regulations are translated into English, including internal approval systems. There are no inequalities among Japanese and foreign nationals in terms of wages, promotions, wage increases, or other any other type of treatment.

We also have a team specializing in hiring foreign nationals, and if foreign nationals desire European-style employment rather than a lifetime position, we are flexible without forcing anyone to adhere to Japanese practices, including the establishment of a system for handling foreign national staff.

Employees (Consolidated)



Human resource development

To promote education and skills development in line with our human resource development policy, Makino provides learning opportunities through level-based training and self-development based on comprehensive training and development systems.

In 2021, we established the MAKINO Business Academy (MBA) in-house university as a platform for the provision of employee educational opportunities. We provide various opportunities for employees to study independently, including joint research with universities, enrolling employees in doctoral (first or second term) or master's degree programs in specialized fields, medium-term career support through career interviews with supervisors, support for voluntary career changes through an in-house open recruitment system, and opportunities to interact with human resources from other companies and overseas subsidiaries.

Growth Support System Examples

- Level-based training
- Support for the acquisition of doctoral and other degrees
- Academic support for personal development
- In-house university MAKINO Business Academy

Topics

Securing future human resources

Makino is engaged in joint research activities with universities and graduate schools in Japan and overseas aimed at promoting efforts to secure human resources for the future. In some cases, students who became interested in the machine tool field through involvement in these activities have become Makino employees.

Overseas, we are conducting joint research with the Technical University of Aachen in Germany, known as a machine tool powerhouse on par with Japan. We also support students who participated in this program in continuing basic research after graduation on machine tools at research institutes.



Employee engagement

Makino regularly conducts surveys to ascertain employee satisfaction or dissatisfaction with their work, analyze results from each division and consider measures for improvement.

For example, if there is a tendency toward overwork, we determine and implement the most appropriate measures, such as increasing employee numbers, providing training, or expanding skill sets.

In evaluating human resources, we conduct interviews and leverage communication between supervisors and subordinates to ensure evaluations are satisfactory and used for skills development going forward.

Promoting diversity

Makino business activities are global, both in terms of customers and destinations, with overseas business far surpassing business in Japan. Respect for diversity is deeply rooted in our Company, which believes a diverse workforce is critical for achieving business goals.

At present, approximately 1.5% of management positions (section chief or higher) at Makino and its domestic Group companies are occupied by women. We aim to increase this ratio to 5% by 2026, then to approximately 15% over the long term. To this end, we intend to increase the ratio of female assistant managers (candidates for managerial positions), which currently stands at approximately 4%, to around 8% by 2026.

To recruit more women in a wide range of occupational fields, including engineering, despite the small number of women currently in this field, Makino will continue to expand and improve childcare leave and other systems that enable women to work more easily, promote long-term employment, and increase the ratio of women in management positions.

All CEOs and CFOs at overseas regional headquarters are foreign nationals. As such, there are no changes to Makino's policy to hire foreign nationals as senior management and executives in the regions.

Promoting various workstyles

Makino has established a variety of employee benefit programs aimed at realizing an appropriate work-life balance for all Makino employees. Rather than being limited to standardized support, we devise support measures in response to changes in individual life stages, including systems supporting childcare and nursing care.

In Japan, we offer lifetime employment, while also enabling employees to select a fixed-term employment system including emphasis on the results in line with employee capabilities and aptitude and engage in work according to their wishes.

Health management and safety

As part of employee health management, Makino strives to prevent diseases and detect illnesses at an early stage with the addition of cancer screenings during health checkups and the provision of opportunities for employees to undergo physical examinations.

We also provide opportunities to receive flu shots in-house and offer COVID-19 vaccinations in the workplace.

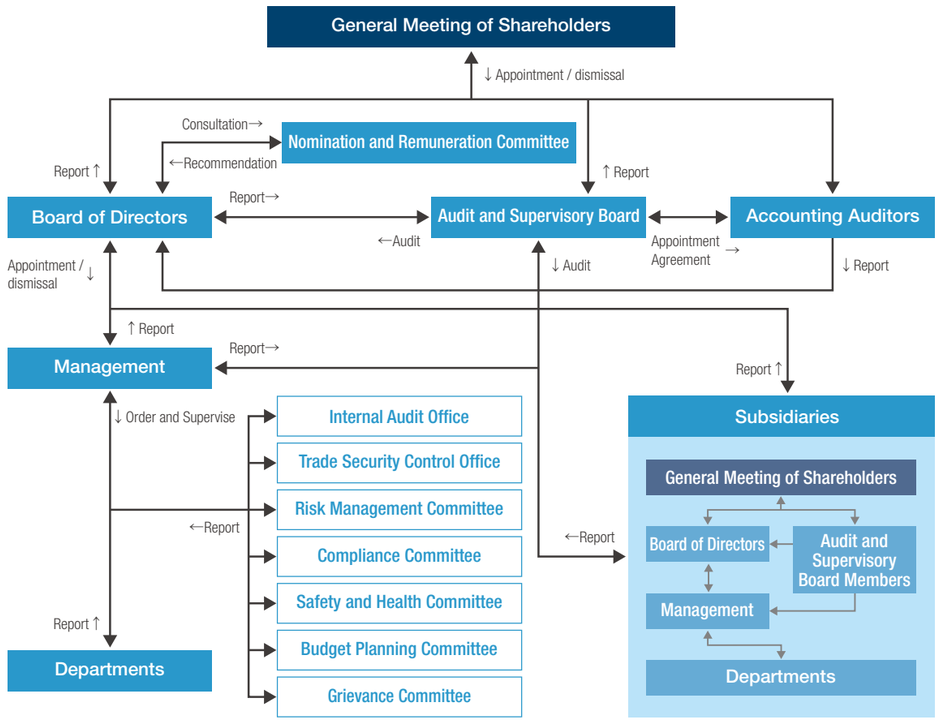
Further, Makino supports various club activities to encourage regular exercise and promote communication.



Corporate Governance



Corporate governance structure diagram



Overview of corporate governance structure

Organizational format	Company with an audit and supervisory board
Directors	8 (including 4 external directors)
Audit and supervisory board members	3 (including 2 external audit and supervisory board members)
Term of office of directors under the articles of incorporation	1 year
Executive officer system	Adopted
Voluntary advisory committee to the Board of Directors	Nomination and Remuneration Committee
Accounting auditor	Gyosei & Co.
Corporate governance report	https://ir.makino.co.jp/library/corporate-governance/

Basic approach to corporate governance

In line with its corporate philosophy and basic management policies, Makino considers corporate governance to be one of the measures that enhances its corporate value in the medium to long term, while giving due consideration to various stakeholders.

We aim to establish effective and efficient corporate governance given the extremely volatile nature of earnings in the machine tool industry.

Corporate governance structure

Makino has adopted a company with an audit and supervisory board from the institutional designs stipulated in the Companies Act and related laws. In addition, for the sake of transparency and more active discussion, four of the Company's eight directors are external directors (including one female), and two of the three audit and supervisory board members are external audit and supervisory board members. In an industry where earnings fluctuate widely from year to year, we have established the aforementioned structure to ensure that we can make decisions promptly, respond quickly to changes in the environment, and make sound management decisions.

Makino's policy is to appoint external directors and external corporate auditors based on their experience working for other organizations and their ability to appropriately fulfill the role from an independent standpoint of supervising or auditing the execution of duties by Makino's directors entrusted by shareholders. We also believe the appointment of external directors allows for the inclusion of a wide range of management expertise and ensures a more thorough role for the Board of Directors.

Director nomination and remuneration are decided by the Board of Directors after consultation and reviewing the recommendation of the Nomination and Remuneration Committee, a voluntary advisory committee to the Board of Directors chaired by an external director and composed of a majority of external directors.

Evaluating the efficacy of the Board of Directors

We conduct an annual survey of Board of Directors participants in recognition that improving the efficacy of the Board of Directors is one of the issues we face. The following is a summary of the most recent results. While we believe that our Board of Directors is performing effectively, we will work to further improve its efficacy in the future.

1. Regular monthly reports and regular resolutions, as well as business plans, investments, and other necessary agenda items are appropriately deliberated.
2. Directors and audit and supervisory board members can engage in an active and constructive exchange of opinions and comment as appropriate.
3. The activities of the Board of Directors including the number of meetings and the time spent on them are rated at a certain level by the directors and audit and supervisory board members.

Executive remuneration

Remuneration for directors is determined by the Board of Directors in consideration of shareholder value so that it functions as an incentive to improve the Company's corporate performance and the resultant corporate value as well as in consideration of the individual responsibilities of each director. Specifically, directors' remuneration consists of basic remuneration as monthly fixed remuneration in accordance with their responsibilities, performance-linked remuneration based on evaluations of the Company's business performance and individual directors, and stock-based remuneration in the form of restricted stock. External directors meanwhile receive only base remuneration as fixed remuneration.

At the Board of Directors meeting held on June 23, 2022, a resolution was passed to introduce a restricted stock compensation plan with the aim of providing incentives to sustainably increase the Group's corporate value and to further promote value sharing with shareholders.

Appointment and dismissal of senior management and nomination of candidates for director and audit and supervisory board member

It is Makino's policy to select candidates who are qualified for the duties to be entrusted to them and who excel in character, experience, and ability, and the Representative Director will prepare a candidate proposal.

Management executives are discussed and approved by the Board of Directors after deliberation by the Nomination and Remuneration Committee. The Board of Directors approves the candidates for audit and supervisory board members as a proposal to be presented to the General Meeting of Shareholders with the consent of the Audit and Supervisory Board.

In accordance with the regulations of the Board of Directors, the dismissal of senior executives is based on the policy of dismissal or non-reappointment in the event of misconduct or serious breach of laws, regulations, or the Articles of Incorporation in the performance of their duties, or in the event that they are unable or unwilling to perform their duties due to physical or mental disability.

Moreover, Makino believes that maintaining an appropriate balance, diversity, and size of the Board of Directors in aggregate in terms of knowledge, experience, and skills is important to the effectiveness of the Board of Directors and considers these factors when selecting board candidates. Please refer to page 36 for a description of the skill matrix and other attributes possessed by Makino's directors.

Policy on cross-shareholdings

Makino holds shares in operating companies for the purpose of maintaining relationships with its business partners and ensuring that transactions are smooth over the long term.

The Board of Directors annually reviews the appropriateness of each individual shareholding from a holistic standpoint, scrutinizing the degree of benefit commensurate with the cost of capital in terms of economic rationality and qualitatively considering the potential for contributing to the enhancement of Makino's medium-term corporate value through activities such as joint research and development.

As a result of this review, Makino will sell shares with value that are considered minimal as cross-shareholdings.

Succession planning

Makino's basic policy is to select its chief executive officers, including the President, from among individuals who are well versed in the machine tool industry and the attributes of Makino's business and who have leadership qualities. To contribute to Makino's sustainable growth and medium- to long-term enhancement of corporate value, we provide educational opportunities to candidates for the next generation of executives who have the necessary attributes to serve through our executive officer system. We have also established the Makino Business Academy as an internal institution to provide employees with opportunities for education on a wide range of management-related topics.

The Nomination and Remuneration Committee will continue to consider the optimal state of Makino's succession planning.

Corporate Governance



Skill Matrix

		Management	Internationality	R&D / Production	Sales / Marketing	Finance / Accounting	Legal / Risk Management
01 Shotaro Miyazaki	President and Representative Director	●	●		●	●	
02 Toshiyuki Nagano	Executive Vice President and Representative Director	●	●			●	●
03 Tatsuaki Aiba	Executive Vice President and Representative Director	●		●	●		
04 Haruyuki Shiraishi	Director	●	●	●			
05 Shin Yoshidome	Director	●			●	●	●
06 Naofumi Masuda	Director	●		●			●
07 Kodo Yamazaki	Director	●				●	●
08 Kazumi Nishino	Director	●				●	●
09 Akio Koumura	Full-time Audit and Supervisory Board Member	●		●	●		
10 Jinei Yamaguchi	Full-time Audit and Supervisory Board Member	●	●			●	●
11 Jiro Nakashima	Audit and Supervisory Board Member	●				●	●

Directors

01 Shotaro Miyazaki
President and Representative Director

Apr. 1986 Joined the Company
Jan. 1999 Director of Heidenreich&Harbeck Werkzeugmaschinenfabrik GmbH
June 2000 Representative Director of Makino Formenbautechnologie GmbH
Mar. 2011 General Manager of Asia Sales Department, Sales Division of the Company
Sept. 2016 General Manager of Overseas Sales Department, Sales Division
Sept. 2021 Executive Officer; Deputy Executive Manager of Sales Division; General Manager of Sales & Application of MAKINO Europe GmbH
June 2022 President and Representative Director (to present)

02 Toshiyuki Nagano
Executive Vice President and Representative Director, Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office

May 2004 Joined the Company
Nov. 2008 General Manager of Finance Department of the Company
June 2009 Director; General Manager of Finance Department; Office Manager of Energy Control Office
Apr. 2011 Director; Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office; Office Manager of Energy Control Office
June 2014 Vice President, Director; Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office; Office Manager of Energy Control Office
June 2016 Executive Vice President, Director; Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office; Office Manager of Energy Control Office
Apr. 2017 Executive Vice President, Director; Executive Manager of Corporate Service Division; Office Manager of Corporate Planning Office; Office Manager of Trade Security Control Office; Office Manager of Energy Control Office
Feb. 2021 Executive Vice President, Director; Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office; Office Manager of Energy Control Office
June 2021 Executive Vice President, Representative Director; Executive Manager of Corporate Service Division; Office Manager of Energy Control Office; Office Manager of Trade Security Control Office, Risk Management Promotion Division
June 2022 Executive Vice President, Representative Director; Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office; Office Manager of Energy Control Office
Oct. 2022 Executive Vice President, Representative Director; Executive Manager of Corporate Service Division; Office Manager of Trade Security Control Office (to present)

03 Tatsuaki Aiba
Executive Vice President and Representative Director; Executive Manager of Production Division

Apr. 1980 Joined the Company
Nov. 2002 General Manager of Fuji Katsuyama Production Department
Dec. 2004 General Manager of Fuji Katsuyama Production Department; General Manager of Procurement Department
June 2005 Director; Executive Manager of Production Division
Oct. 2012 Director; Executive Manager of Production Division; Executive Manager of Fuji Katsuyama Works
June 2014 Vice President, Director; Executive Manager of Production Division; Executive Manager of Fuji Katsuyama Works
June 2020 Vice President, Director
Sept. 2021 Vice President, Director; Executive Manager of Quality/ Procurement Division
June 2022 Executive Vice President, Representative Director; Executive Manager of Production Division (to present)

04 Haruyuki Shiraishi
Director, Executive Manager of R&D Division

Apr. 1985 Joined the Company
Jan. 2008 Deputy Executive Manager of Development Division
Feb. 2013 Deputy Executive Manager of Production Division
Jan. 2016 Director of MAKINO ASIA PTE LTD
June 2020 Executive Officer; Executive Manager of Production Division; Executive Manager of Fuji Katsuyama Works of the Company
June 2022 Director, Executive Manager of R&D Division (to present)

05 Shin Yoshidome
Director, External and Independent

June 2001 Executive Officer of Daiwa Securities SMBC Co. Ltd.
June 2004 Managing Director of Daiwa Securities SMBC Co. Ltd.
Apr. 2006 Representative Director; Senior Managing Director of Daiwa Securities SMBC Co. Ltd.
Senior Executive Officer of Daiwa Securities Group Inc.
Apr. 2007 President of Daiwa Securities SMBC Co. Ltd.
Director; Representative Executive Vice-President of Daiwa Securities Group Inc.
Jan. 2010 President & Director of Daiwa Securities Capital Markets Co. Ltd.
Director; Representative Executive Vice-President of Daiwa Securities Group Inc.
Apr. 2011 Chairman & Director of Daiwa Securities Capital Markets Co. Ltd.
Director of Daiwa Securities Group Inc.
Apr. 2012 Special Advisor to Daiwa Securities Co. Ltd.
Chairman & Director of Daiwa Institute of Research Business Innovation Ltd.
June 2013 External Director of Tokyo Financial Exchange Inc.
Apr. 2014 Special Advisor to Daiwa Institute of Research Business Innovation Ltd.
June 2014 External Director of JAPAN POST INSURANCE Co., Ltd.
June 2015 External Director of Nojima Corporation
Apr. 2016 Advisor to Daiwa Securities Co. Ltd. (to present)
June 2018 Director of the Company (to present)

[Significant concurrent positions]
Advisor to Daiwa Securities Co. Ltd.

06 Naofumi Masuda
Director, External and Independent

June 2008 Managing Officer of TOYOTA MOTOR CORPORATION (Kinuura Plant General Manger, Myochi Plant General Manager)
June 2010 Senior Managing Director of ADVICS CO., LTD.
June 2014 Executive Vice President of ADVICS CO., LTD.
June 2017 Advisor & Chief Engineer of ADVICS CO., LTD.
June 2018 Executive Advisor of ADVICS CO., LTD.
June 2019 External Director & Member of the Audit & Supervisory Committee of YASUNAGA CORPORATION (to present)
June 2020 Director of the Company (to present)

[Significant concurrent positions]
External Director & Member of the Audit & Supervisory Committee of YASUNAGA CORPORATION

07 Kodo Yamazaki
Director, External and Independent

Apr. 1989 Assistant Professor of Takayama Junior College
Apr. 1994 Professor of Takayama Junior College
Apr. 2001 Professor of Faculty of Law, Kumamoto University
June 2003 Managing Director of Japan Tax Jurisprudence Association
Apr. 2007 Dean of Faculty of Law, Kumamoto University
Apr. 2015 Trustee and Deputy President of Kumamoto University
Apr. 2020 Professor of Graduate School, Kumamoto Gakuen University (to present)
June 2020 Director of the Company (to present)

[Significant concurrent positions]
Professor of Graduate School, Kumamoto Gakuen University

08 Kazumi Nishino
Director, External and Independent

Apr. 1992 Joined Fuji Photo Film Co., Ltd.
Apr. 2006 Associate Professor, Department of Management of Science and Technology, Graduate School of Management of Science and Technology of Tokyo University of Science
Apr. 2017 Associate Professor, Graduate School of Commerce and Management of Hitotsubashi University
June 2019 Outside Director of Orient Corporation (to present)
Outside Independent Director of FURUKAWA CO., LTD. (to present)
Dec. 2019 External Board Director of MiRTeL Co., Ltd.
Apr. 2022 Professor of Business Administration, Graduate School of Business Administration of Hitotsubashi University (to present)
June 2022 Director of the Company (to present)

[Significant concurrent positions]
Professor of Business Administration, Graduate School of Business Administration of Hitotsubashi University
Outside Director of Orient Corporation
Outside Independent Director of FURUKAWA CO., LTD.

Audit and Supervisory Board Members

09 Akio Koumura
Full-time Audit and Supervisory Board Member

Apr. 1975 Joined the Company
July 1999 Office Manager of UG/EYE Development Office
Dec. 2004 Office Manager of UG/EYE Development Office; General Manager of DM System Development Department
June 2005 Director; Office Manager of UG/EYE Development Office; General Manager of DM System Development Department
Feb. 2006 Director; Executive Manager of Mold Software Division
June 2008 Director, Executive Manager of Sales Division
Aug. 2009 Director, Executive Manager of Sales Division; Domestic Sales Control
Feb. 2010 Director; Executive Manager of Sales Division; Executive Manager of Mold Software Division
May 2010 Director; Executive Manager of Sales Division; Executive Manager of Production Software Division
June 2011 President & Representative Director of Makino Technical Service Co., Ltd.
June 2020 Advisor to Makino Technical Service Co., Ltd.
June 2021 Full-time Audit and Supervisory Board Member of the Company (to present)

10 Jinei Yamaguchi
Full-time Audit and Supervisory Board Member, External and Independent

Apr. 1984 Joined The Mitsubishi Bank, Ltd. (currently MUFG Bank, Ltd.)
Apr. 2006 Deputy Branch Manager of Singapore Branch, The Mitsubishi Bank, Ltd.
July 2009 General Manager of International Business Department, The Mitsubishi Bank, Ltd.
July 2011 Branch Manager of London Branch, The Mitsubishi Bank, Ltd.
July 2013 Seconded to Chiyoda Corporation
Acting General Manager of Planning Administration Division
Apr. 2014 Transferred to Chiyoda Corporation
Executive and Acting General Manager of Planning Administration Division, Chiyoda Corporation
Apr. 2015 Executive Officer and Acting General Manager of Project Procurement & Logistics Division, Chiyoda Corporation
Apr. 2018 Executive Officer and Acting General Manager of Corporate Planning Division, Chiyoda Corporation
July 2019 Executive Officer and Assistant General Manager of Finance & Accounting Division, Chiyoda Corporation
June 2020 Full-time Audit and Supervisory Board Member of the Company (to present)

11 Jiro Nakashima
Audit and Supervisory Board Member, External and Independent

Aug. 1983 Registered as a Certified Public Accountant
Opened Nakashima Jiro Certified Public Accountant Office (to present)
Nov. 1984 Member of Serisawa Accountant Office (currently GYOSEI & CO.)
July 2005 Representative Member of Serisawa Accountant Office (currently GYOSEI & CO.)
June 2011 Retired from GYOSEI & CO.
June 2012 Audit and Supervisory Board Member of the Company (to present)

[Significant concurrent positions]
Nakashima Jiro Certified Public Accountant Office

Message from external directors



Shin Yoshidome — External and Independent Director

Board discussions from both financial and non-financial perspectives

As a member of the financial industry with long experience working at a securities company, I am proactive in providing advice on IR measures, including those for overseas investors, as well as financial and capital policies, digital transformation (DX), and non-financial areas such as strengthening governance and HR-related issues. In my opinion, Makino's corporate governance is covering the points that need to be kept in check well, and the Board of Directors is fully engaged in discussions. If I were to point out an opportunity for improvement, I believe there is a need for more active discussion on non-financial themes in the future.

Diversification of production bases and expansion of sales regions

Makino's strength lies in the close linkage among its production, R&D, sales, and administrative divisions—all of which are constantly working together to resolve customers' issues and keep them satisfied.

On the other hand, a challenge is to consider diversification of production bases and expansion of sales regions looking at political, disaster, and other risks. President Shotaro Miyazaki has extensive overseas sales and management experience combined with a warm character with strong leadership.

Each of the Company's departments is steadily developing young and talented human resources, and I sincerely look forward to their growth as leaders in the machine tool industry.



Naofumi Masuda — External and Independent Director

Carrying on treasures from Makino's founding days

I have experience in R&D, production engineering, and manufacturing processes in the automobile manufacturing industry. As such, I offer advice and make suggestions to Makino from the perspective of both the same manufacturing side and also as a machine tool user.

My former employer and Makino have much in common, such as both being founded in 1937, and both have contributed to the world through manufacturing. Throughout this long history, there are certain things that both companies should carry on unchanged. I believe the values that have been important to Makino since its founding (developing good products / customer-first mindset / trust and cooperation with others) are important treasures and immutable strengths that it should continue to pass down to future generations.

Further improvement of business processes

At the same time, I believe to respond to the dramatic changes in the environment, the Company needs to transform its business processes in tandem with its colleagues at its business locations around the world.

I hope that President Shotaro Miyazaki will use his many years of valuable experience in sales and overseas operations, in which he has directly listened to the voices of Makino's customers first hand, to instill in all Makino employees the same important values that have remained unchanged. I also am looking forward to President Miyazaki demonstrating global leadership with vitality and agility.



Kodo Yamazaki — External and Independent Director

Lively discussions on important issues from society

As someone with long experience in educational and research activities, I intend fulfill my role as an external director by applying my experience and legal expertise as a dean, director and vice president of a university; an executive director of an academic society; and as a member of councils of various organizations.

At Makino's Board of Directors meetings, each department makes proposals on important issues such as the Medium-term Management Plan, SDGs, and Corporate Governance Code. These are resolved and approved after active discussions, and transparent, fair, and decisive decision-making is carried out.

A relationship of trust with customers is the foundation of Makino

Makino's strength lies in its high-precision, high-quality products and the strong relationship of trust it has with its customers built on the activities of its employees in their involvement with such products. To ensure that this translates into earnings, it is necessary to work to shorten delivery times while more agilely identifying latent customer demand than ever before.

Trust is the foundation of a company's existence, and I hope all of Makino's employees pursue "Quality First" in all products and services as well as in their own organizations and in the way they conduct themselves. I also am confident they will work with a renewed awareness of the need to build even stronger relationships of trust with Makino's customers.



Kazumi Nishino — External and Independent Director

Considering ripple effects on stakeholders

As a university faculty member specializing in business administration, management strategy and technology management theory, I am exploring my own role in rethinking the Company's business situation and management issues from the framework of management theory while comparing Makino with its peers.

In the current external environment, which is constantly changing and becoming more uncertain by the day, many companies, including Makino, are faced with the difficult task of running their businesses. And since some of the management issues discussed at board meetings have a major impact on the future earnings structure and corporate growth, it is essential to consider the ripple effects on stakeholders and address them from the lens of corporate social responsibility.

Becoming the mother machine for cutting-edge manufacturing through tireless efforts

Makino's strength lies in its advanced technological capabilities and the skills of its employees to support them. They consistently meet the high demands of our advanced customers in the manufacturing industry, even as customers' technological standards have improved, bringing intensifying demands for quality. Makino's high technological capabilities are the product of continuous R&D and improvement. In recent years, the Company's products have been used by aircraft and semiconductor manufacturing equipment manufacturers for cutting-edge product processing, which is also the result of its consistent efforts to improve its technological capabilities since its foundation. I look forward to Makino further improving its technological capabilities toward the mother machine for advanced manufacturing.

Compliance

Makino has established and implemented the following systems as measures to ensure compliance.

- Code of Conduct: We have established the "Makino Milling Machine Employee Code of Conduct," which summarizes the behavior to be observed by our officers and employees and have notified all employees of the Code.
- Compliance Committee: The Compliance Committee is chaired by the Executive Manager of the Corporate Service Division and reports and deliberates on measures and activities necessary to promote compliance, including the status of compliance, details of new and revised laws and regulations and response to them as well as reportable items and material compliance breaches.

  In addition, the Committee's activities are reported to the Board of Directors on a regular basis and on an ad hoc basis for major issues.
- Whistleblowing system: The Company has established a whistleblowing system, with internal and external contact points, and has formulated "Rules for Public Interest Reporting System Operation," which stipulate protective measures for whistleblowers. Reporting and suggestion boxes were newly installed in 2022 at each business location to facilitate whistleblowing.
- Relationship with suppliers: We have established and distributed a code of conduct for suppliers that we expect our suppliers to comply with in terms of human rights, health and safety, labor environment, environment, fair trade, and related issues. We have also established "Guidelines for Green Procurement" for the use of chemical substances and promote the procurement of materials, etc. with low environmental impact.

Trade security

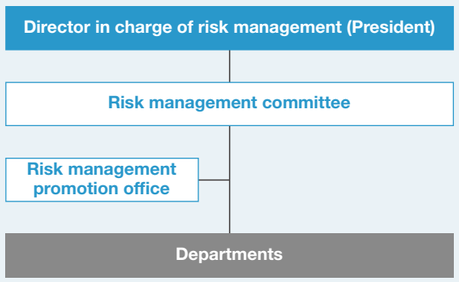
Machine tools are essential equipment for the production of nuclear weapons and arms and are subject to export controls if they deliver a certain level of performance. Because many of our products meet high precision requirements, many of them are subject to export regulations.

We have established regulations for security export control to ensure full compliance with export control regulations. There is a special department reporting directly to the president, headed by a director and independent of the sales division, to examine export cases, provide training, conduct internal audits, and ensure rigorous compliance with all regulations.

Risk management

The Company's policy is not only to manage the risk of loss but also to prevent deviation from laws and regulations and the Articles of Incorporation and thus ensure efficient business execution. This is accomplished by establishing a risk management framework, which is the basis of the structure to ensure the appropriateness of operations. As part of the risk management framework, the Company has positioned the President as the officer in charge of risk management and established the Risk Management Committee to serve as an advisory body to the President. In principle, the Risk Management Committee meets twice a year to report on risks and the status of initiatives. In the event that a risk with a high degree of damage materializes, meetings are held as needed to report and deliberate on the status of the response, and matters that are particularly material are reported to the Board of Directors for necessary deliberation.

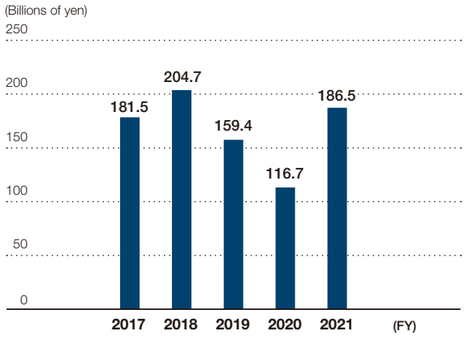
Risk management framework



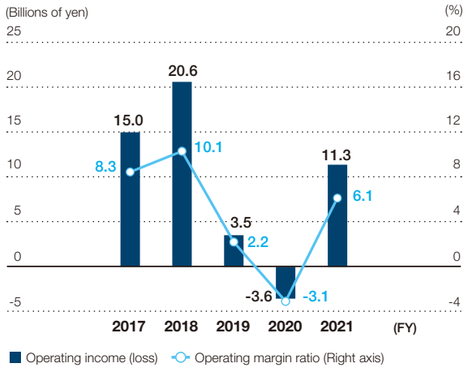
Financial and Non-financial Highlights

Financial Highlights

Consolidated net sales



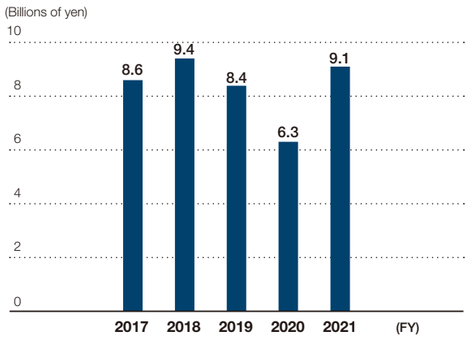
Consolidated operating income (loss)/ Operating margin ratio



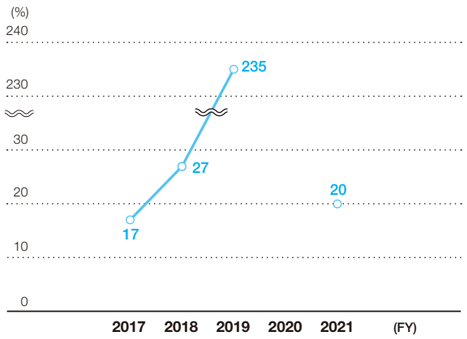
Consolidated ROE

Consolidated total asset turnover

Consolidated capital expenditures

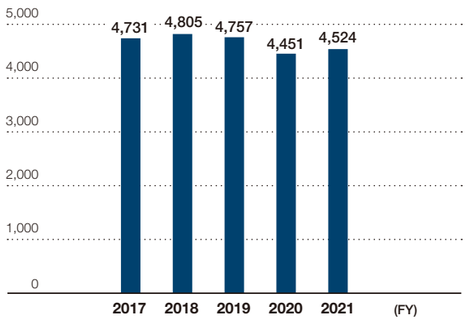


Consolidated total payout ratio

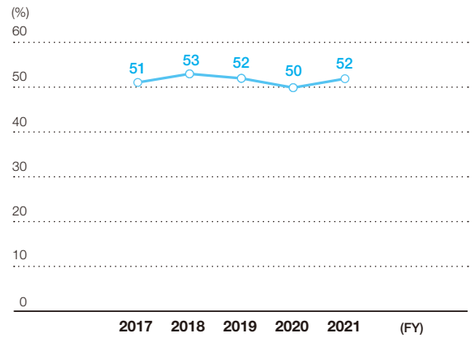


Non-financial Highlights

Consolidated number of employees



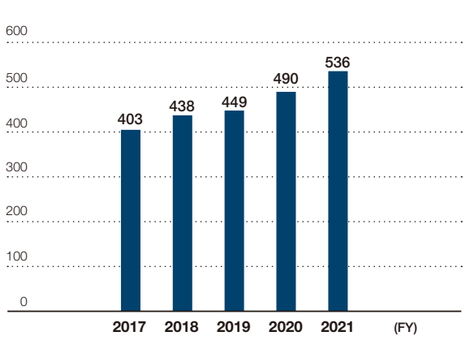
Consolidated ratio of overseas employees



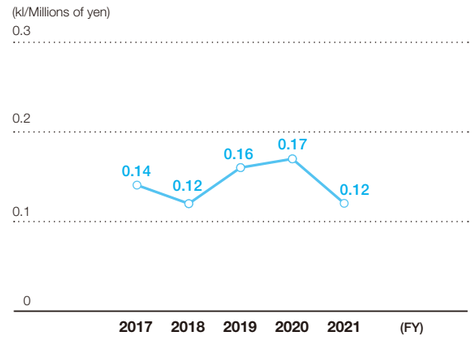
Non-consolidated average age of employees

Non-consolidated average employee length of service

Consolidated number of patents held



Energy consumption in Atsugi and Fuji Katsuyama Works (Basic unit)



These figures are calculated by converting the amount of energy consumed (electricity, kerosene, and gas) into crude oil volume (kl) and dividing by the production value.
Basic unit (kl/Millions of yen) = Crude oil equivalent of energy consumption (kl) / production value (Millions of yen)

Five-Year Financial Summary

Makino Milling Machine Co., Ltd. and Consolidated Subsidiaries

	Billions of yen				
For the years ended March 31	2018	2019	2020	2021	**2022**
Net sales	¥181.5	¥204.7	¥159.4	¥116.7	**¥186.5**
Operating income (loss)	15.0	20.6	3.5	(3.6)	**11.3**
Ordinary income (loss)	15.7	21.9	4.1	(1.3)	**14.2**
Net income (loss) attributable to owners of the parent	11.6	16.9	0.8	(2.7)	**12.0**
Capital expenditures	8.6	9.4	8.4	6.3	**9.1**
Depreciation	5.1	5.9	6.6	6.8	**7.2**
R&D expenses	6.0	6.5	6.6	6.5	**7.5**
Cash flows from operating activities	15.3	15.3	8.8	18.0	**14.9**
Cash flows from investing activities	(9.5)	(8.7)	(8.3)	(6.5)	**(9.5)**
Free cash flows	5.7	6.6	0.4	11.4	**5.4**
Cash flows from financing activities	(6.9)	(7.6)	7.4	6.0	**(8.1)**
Cash and cash equivalents, end of period	49.7	48.8	55.3	74.6	**75.7**

	Yen				
For the years ended March 31	2018	2019	2020	2021	**2022**
Net income per share	¥511.3	¥689.3	¥34.0	¥(110.8)	**¥499.2**
Net assets per share	6,095.3	6,550.3	6,172.3	6,663.2	**7,433.0**
Cash dividends per share	85.0	105.0	80.0	20.0	**60.0**

	Billions of yen				
March 31	2018	2019	2020	2021	**2022**
Total Assets	¥268.3	¥269.5	¥258.8	¥280.0	**¥325.5**
Shareholders' Equity	151.7	160.1	150.8	161.1	**177.8**
Equity Ratio	56.5%	59.4%	58.3%	57.6%	**54.6%**

	Billions of yen				
For the years ended March 31	2018	2019	2020	2021	**2022**
Net sales by product:					
Machining center	¥126.7	¥145.5	¥103.6	¥67.7	**¥118.0**
EDM	13.9	16.0	14.4	12.6	**20.4**
Milling Machine	0.5	0.5	0.4	0.2	**0.2**
Other	40.3	42.5	40.8	36.0	**47.8**
Net sales by region:					
Domestic sales	¥39.5	¥50.9	¥40.4	¥28.7	**¥43.0**
Overseas sales					
America	54.1	57.3	48.8	32.8	**45.8**
Europe	19.4	21.0	15.0	8.5	**13.3**
Asia and Others	68.3	75.3	55.0	46.5	**84.3**

Note: For more information, please refer to the Annual Report 2022. https://ir.makino.co.jp/en/library/annual-report/pdf/2022/makino_ar2022_3.pdf

Corporate Information

Corporate Data (As of March 31, 2022)

Company Name

Makino Milling Machine Co., Ltd.

Head Office

3-19, Nakane 2-chome, Meguro-ku, Tokyo 152-8578, Japan
Phone: +81-3-3717-1151

Established

May 1937

Paid-in capital

¥21,142 million

Number of employees

4,524 (Consolidated basis)

Major businesses

Manufacture, sale and maintenance of machine tools, including machining centers, NC EDMs, NC milling machines, milling machines, FMS, CAD/CAM and other products

Directors and Audit and Supervisory Board Members

(As of June 23, 2022)

President and Representative Director	Shotaro Miyazaki
Executive Vice President and Representative Director	Toshiyuki Nagano
Executive Vice President and Representative Director	Tatsuaki Aiba
Director	Haruyuki Shiraishi
External Director	Shin Yoshidome
External Director	Naofumi Masuda
External Director	Kodo Yamazaki
External Director	Kazumi Nishino
Full-time Audit and Supervisory Board Member	Akio Koumura
External and Full-time Audit and Supervisory Board Member	Jinei Yamaguchi
External and Audit and Supervisory Board Member	Jiro Nakashima

Share Information (As of March 31, 2022)

Total number of shares issued

24,893,841 (Including treasury stock of 961,278 shares)

Number of shareholders

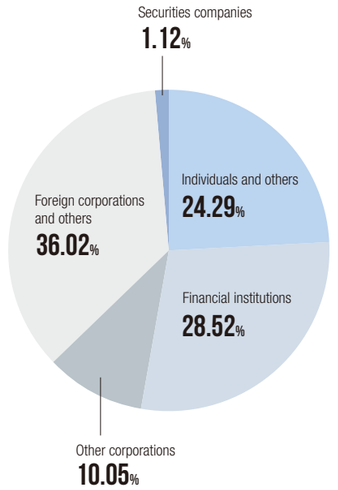
7,421

Major shareholders (Top 10)

Name	Number of shares owned (Thousands)	Ownership percentage of total shares issued (%)
The Master Trust Bank of Japan, Ltd. (Trust account)	3,412	14.26
Custody Bank of Japan, Ltd. (Trust account)	1,868	7.81
Machine Tool Engineering Foundation	893	3.74
NOMURA CUSTODY NOMINEES LTD-TK1 LIMITED	880	3.68
CACEIS BANK S.A., GERMANY BRANCH-CUSTOMER ACCOUNT	738	3.08
NCSN-SHOKORO LIMITED	639	2.67
STATE STREET LONDON CARE OF STATE STREET BANK AND TRUST, BOSTON SSBTC A/C UK LONDON BRANCH CLIENTS-UNITED KINGDOM	554	2.32
SSBTC CLIENT OMNIBUS ACCOUNT	512	2.14
CITY INDEX ELEVENTH Co., Ltd.	509	2.13
Jiro Makino	478	2.00

(Note) The ownership percentage of total shares issued has been calculated after the deduction of treasury stock. (Rounded down less than 1,000 shares)

Composition of shareholders



MAKINO

Promise of Performance

For inquiries, contact

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IR / SR Section, Sustainability Promotion Office, Corporate Service Division

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