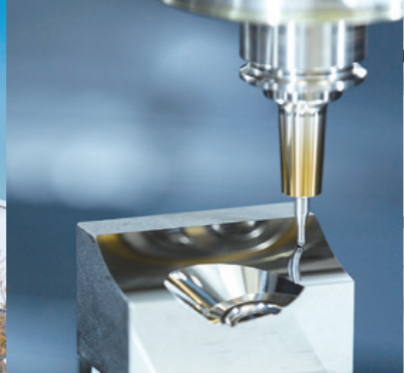


Fiscal Year Ended March 31, 2022
(April 1, 2021 to March 31, 2022)

Business Report





Brand Statement

For Crafting Tomorrow

The honor of supporting Japan's *monozukuri*—the art of manufacturing and craftsmanship—has always been at the root of our company. As a leading manufacturer of small-diameter carbide end mills, we strive to create valuable products that cater to the needs of our customers and the society.

We will introduce innovative solutions by continuously pushing the limits of our own technical standards, and present pioneering skills, quality and services to the future, and to the world. NS TOOL will continue to explore the infinite possibilities and dreams in *monozukuri*.

Management Philosophy

NS TOOL creates “**Software** (technology),” “**Hardware** (machine)” and “**Heart** (humanity).” We contribute to society by developing eco- and human-friendly products.



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*With consideration for safety, this includes photos with the mask removed only when shooting.

Disclaimer

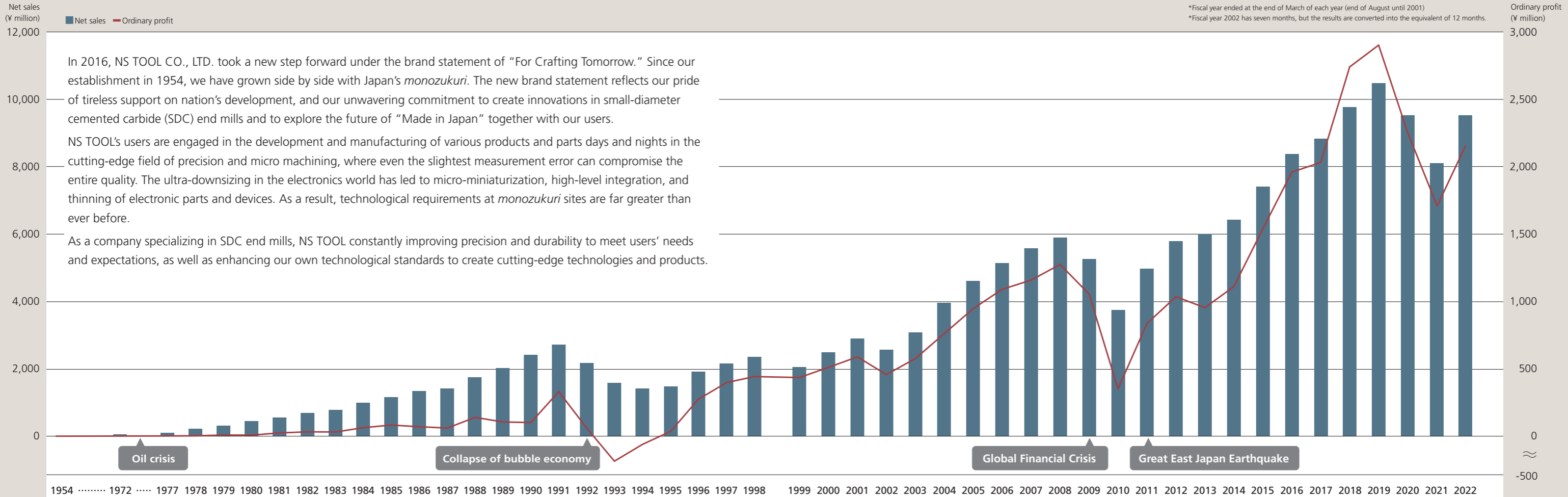
Notes regarding the Company’s estimates

This report contains forward looking estimates including plans, strategies, financial performance and other statements. These estimates are based on the determination derived from the information that can be obtained currently. Please note that the actual results are supposed to be affected by various types of risks and uncertainties and, as a result, can be largely differ from these estimates.



Major Milestones of NS TOOL Group

"*monozukuri*" means manufacturing in Japanese.



In 2016, NS TOOL CO., LTD. took a new step forward under the brand statement of "For Crafting Tomorrow." Since our establishment in 1954, we have grown side by side with Japan's *monozukuri*. The new brand statement reflects our pride of tireless support on nation's development, and our unwavering commitment to create innovations in small-diameter cemented carbide (SDC) end mills and to explore the future of "Made in Japan" together with our users.







NS TOOL's users are engaged in the development and manufacturing of various products and parts days and nights in the cutting-edge field of precision and micro machining, where even the slightest measurement error can compromise the entire quality. The ultra-downsizing in the electronics world has led to micro-miniaturization, high-level integration, and thinning of electronic parts and devices. As a result, technological requirements at *monozukuri* sites are far greater than ever before.

As a company specializing in SDC end mills, NS TOOL constantly improving precision and durability to meet users' needs and expectations, as well as enhancing our own technological standards to create cutting-edge technologies and products.

History of NS TOOL

- 1954** Establishes Nisshin Kogu Seisakusho.
- 1961** Establishes Nisshin Kogu Seisakusho L.C. in Shinagawa-ku, Tokyo.
- 1977** Starts exporting products (to Taiwan).
- 1979** Changes the organization to Nisshin Kogu Seisakusho Co., Ltd.
- 1990** Establishes a consolidated subsidiary G-Tech Co., Ltd.
- 1991** Changes the trade name to NS TOOL Co., Ltd.
- 1994** Declares specialization in small-diameter end mills.
- 1999** Invests in Sato Tool, Ltd. (Niigata Nisshin Co., Ltd.).
- 2001** Acquires ISO9001 certification.
- 2002** Makes G-Tech Co., Ltd. and Sato Tool, Ltd. (Niigata Nisshin Co., Ltd.) wholly-owned subsidiaries.
- 2004** Acquires ISO14001 certification. Lists on the JASDAQ Stock Exchange.
- 2009** Establishes NS Engineering Co., Ltd.
- 2011** Makes Makino Industry Co., Ltd. a wholly-owned subsidiary.
- 2013** Establishes NS TOOL Hong Kong Ltd.
- 2016** Reforms the corporate identity. NS Engineering Co., Ltd. takes over Niigata Nisshin Co., Ltd.
- 2017** After switching to the Second Section of the Tokyo Stock Exchange, NS TOOL was designated as a First Section stock.
- 2018** Relocates Headquarters and Tokyo Office.
- 2021** Establishes NS TOOL USA, INC.
- 2022** Transitions to the Prime Market of the Tokyo Stock Exchange.

History of development, production, and sales activities

- 1972** Launches the original "Power End Mill" with helix angle of 50 degrees. 
- 1980** Makes a full-scale entry into the mold market with a cemented carbide solid end mill.
- 1989** Constructs new Fujisawa Factory and establishes operation of three-production sites.
- 1993** Completes the first stage of construction of Sendai Factory. 
- 1994** Completes the second stage of construction of Sendai Factory. Introduces a CNC grinding machine made by Rollomatic SA (Switzerland) for the first time in Japan.
- 1998** Completes the third stage of construction of Sendai Factory. Consolidates Production Division and Development Division into Sendai Factory.
- 2001** Establishes R&D Center on the premises next to Sendai Factory.
- 2003** Launches a project to develop an original Tool Grinding Machine "TGM." Launches CBN end mills.
- 2006** Holds the first NS Private Show. Completes the first Tool Grinding Machine "TGM" developed by NS TOOL. 
- 2008** Holds the second NS Private Show.
- 2009** Establishes a new Manufacturing Center.
- 2011** Sendai Factory recovers from Great East Japan Earthquake in one month. 
- 2016** Completes the fifth stage of construction of Sendai Factory.
- 2020** Holds the third "NS TOOL Private Show 2020."  Establishes R&D Center with All-round Isolation System structure. 
- Opens Sendai inventory center. NS Engineering Co., Ltd. starts manufacturing small-diameter end mills at its Niigata Factory.

NS TOOL Group Network

a NS TOOL CO., LTD. Headquarters

Headquarters Shinagawa-ku, Tokyo
Business lines Sale of cutting tools, inventory center

b NS TOOL CO., LTD. Sendai Factory

Sendai Factory Taiwa-cho, Kurokawa-gun, Miyagi
Business lines Development and manufacture of cutting tools, inventory centers

NS Engineering Co., Ltd. Niigata Factory

d

NS Engineering Co., Ltd. Headquarters and Main Factory

NS TOOL CO., LTD. Sendai Factory

b

c

NS Engineering Co., Ltd. Headquarters and Main Factory

e

Makino Industry Co., Ltd.

a

NS TOOL CO., LTD. Headquarters

c NS Engineering Co., Ltd. Headquarters and Main Factory

Headquarters and main factory Taiwa-cho, Kurokawa-gun, Miyagi
Business lines Coating processing and re-grinding of cutting tools

d NS Engineering Co., Ltd. Niigata Factory

Niigata Factory Uonuma-city, Niigata
Business lines Manufacture of cutting tools

e Makino Industry Co., Ltd.

Headquarters and main factory Shirakawa-city, Fukushima
Business lines Developing, manufacturing and sale of plastic molded products, mainly tool cases

f NS TOOL Hong Kong Ltd.

Headquarters Hong Kong, China
Business lines Sale of cutting tools, inventory center

g NS TOOL USA, INC.

Headquarters Rochester Hills, Michigan, U.S.A.
Business lines Sale of cutting tools, inventory center (to be opened)

NS TOOL USA, INC.

NS TOOL Hong Kong Ltd. Suzhou Office

NS TOOL Hong Kong Ltd. Shenzhen Representative Office

NS TOOL Hong Kong Ltd.

Value Creation Process of NS TOOL Group

"monozukuri" means manufacturing in Japanese.

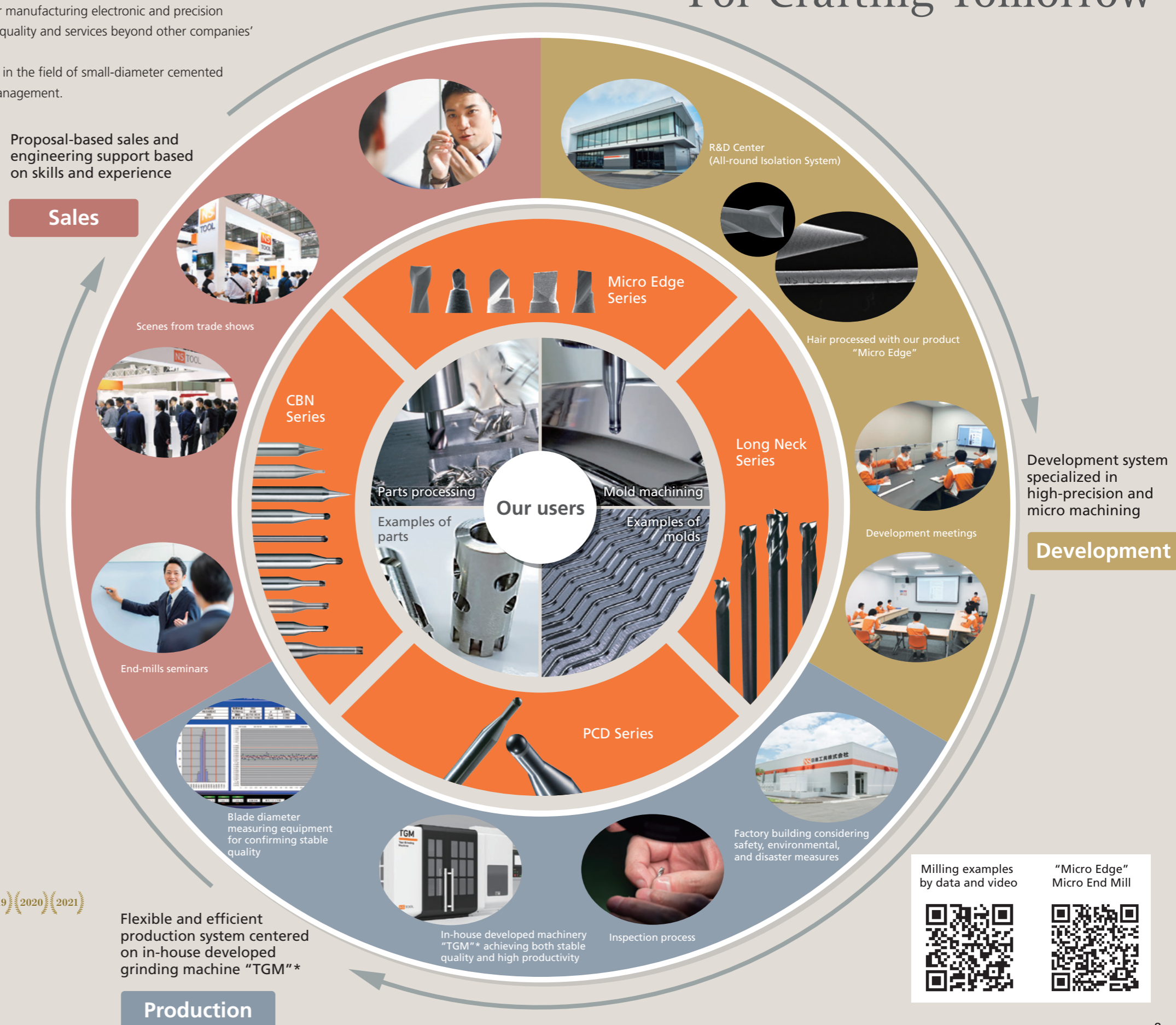
— Unlock the dreams and possibilities of *monozukuri* —

In order to support the precision and micro machining technologies essential for manufacturing electronic and precision parts, which Japan's *monozukuri* is best at, our Group challenges technologies, quality and services beyond other companies' reach and has been restlessly working to create new added values.

As a group specializing in small-diameter tools, we boast the top share in Japan in the field of small-diameter cemented carbide end mills, and maintain high profit margin and a thorough debt-free management.

Resources for creating added values

For Crafting Tomorrow



Proposal-based sales and engineering support based on skills and experience

Sales

Scenes from trade shows

End-mills seminars

Blade diameter measuring equipment for confirming stable quality

Flexible and efficient production system centered on in-house developed grinding machine "TGM"*

Production

R&D Center (All-round Isolation System)

Development system specialized in high-precision and micro machining

Development

Hair processed with our product "Micro Edge"

Development meetings

Factory building considering safety, environmental, and disaster measures

In-house developed machinery "TGM"* achieving both stable quality and high productivity

Inspection process

NS TOOL Group (Fiscal year ended March 31, 2022)

Specialist of small-diameter end mills

Net sales **¥9.5 billion**
(Ratio of small-diameter: 78.2%)
Operating profit **¥2.1 billion**
Profit attributable to owners of parent **¥1.5 billion**

Solid financial base

Total assets **¥17.8 billion**
Shareholders' equity **¥15.9 billion**
Equity ratio **89.2 %**
Cash and deposits **¥8.5 billion**

Elite specialists of small-diameter end mills

Employees **348**
Of which, **33** development personnel

Abundant and excellent products

Material x Type x Coating = Approx. **10,000** types

Intellectual property owned

Acquired patents, etc. **53**

Awards received

Ministry of Economy, Trade and Industry
Global Niche Top Companies Selection 100 (2020)

Monozukuri Japan Conference, The Nikkan Kogyo Shimbun, Ltd.
"Super" Monozukuri Parts Award: (2011)(2012)(2014)(2015)(2016)(2019)(2020)(2021)
Received 8 times

News Digest Publishing.Co.,Ltd.
ND Marketing Awards (2014)

Ministry of Economy, Trade and Industry, etc.
Monozukuri Japan Award: Received twice (2005)(2013)

Milling examples by data and video

"Micro Edge" Micro End Mill

*TGM: Tool Grinding Machine

“Creating New” — End Mills that Contribute to Society’s Development —

What are end mills ?

End mills are cutting tools attached to machine tools for cutting and processing metals such as steel, stainless steel, and aluminum. End mills are capable of a wide variety of millings, such as holes, grooves, planes, and three-dimensional curved surfaces. End mills are used for processing molds and parts.

Small-diameter end mills with diameter 6mm or less, the flagship products of NS TOOL, are most suitable for precision and micro machining. Small-diameter end mills are used by over 5,000 companies from major manufacturers to small sized ones.



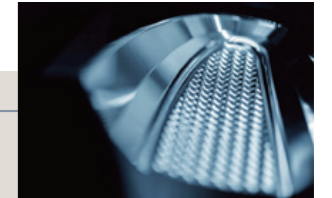
Appearance of end mills



Machine tools appearance



Milling process



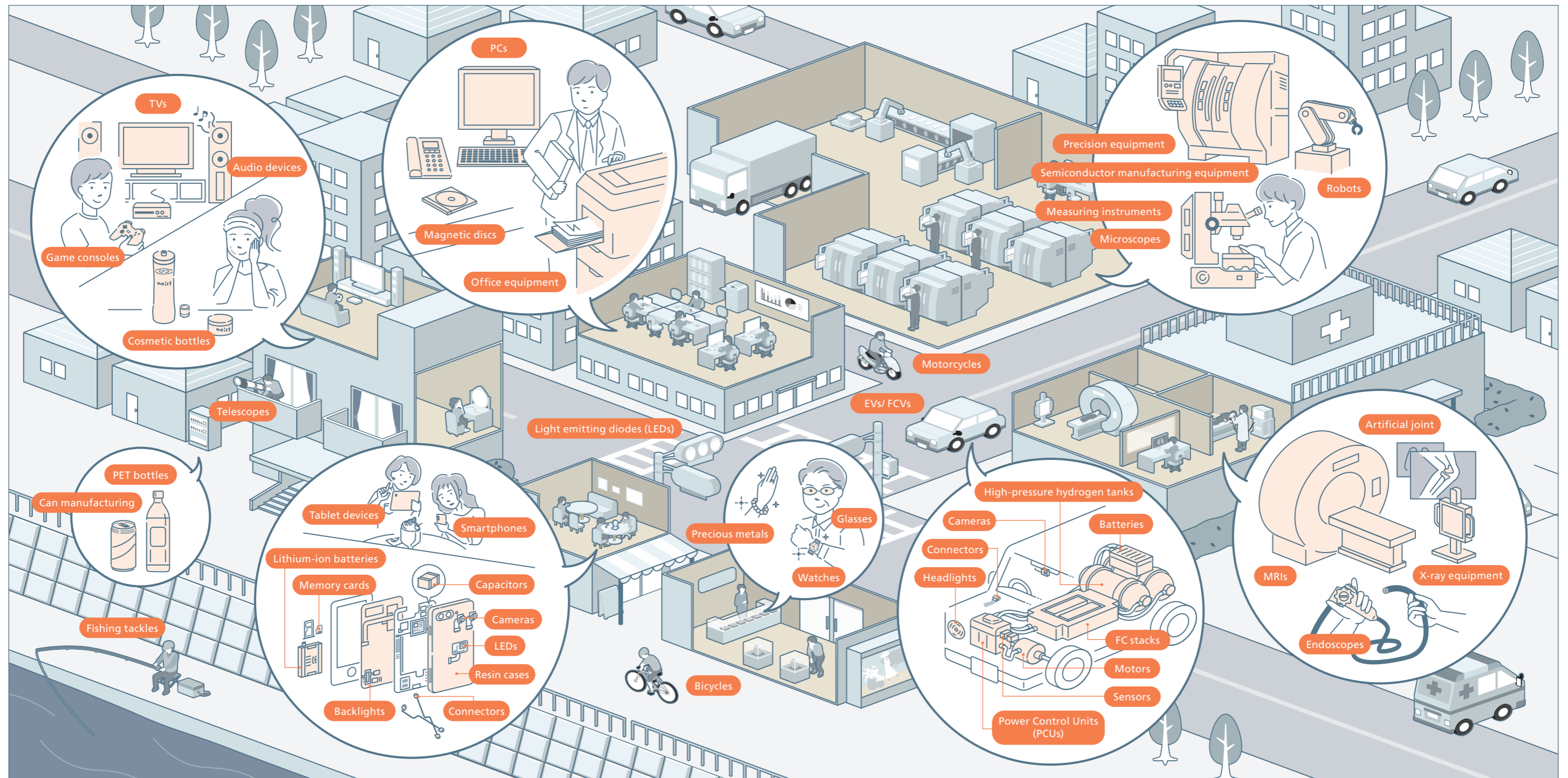
Mold machining



Parts processing

End mills are attached to a machine tool and milling materials.

Machining with small-diameter end mills helps produce many products such as the following:



NS TOOL will support our users who keep on making challenges to improve precision and micro machining and, with them, endeavor to create the new market.



Hiroji Goto, President

Review of business activities in FY3/22

In FY3/21, the impact of COVID-19 pandemic became apparent. Against such a backdrop, we worked on cost reduction as much as possible to avoid losses while protecting employment, by implementing such temporary measures as cutback of factory operation and reducing the board members' remuneration. Also at the *monozukuri* site, we have continued to take measures of manufacturing cost reduction. As a result, we managed to restore our value-added ratio per employee to the level before COVID-19 pandemic.

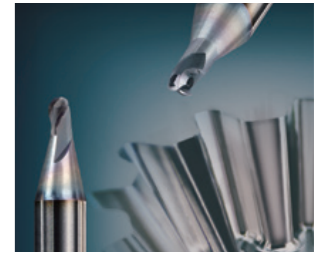
In FY3/22, we have promoted our business assuming to restore to the pre-pandemic level, which meant to the level to that of FY3/20, instead of FY3/21. The business performance had steadily improved to that level until the beginning of fall 2021, when the economic activities showed a sign of recovery thanks to the progress in COVID-19 vaccination and the relaxation of restrictions on activities.

After the fall, however, the business environment deteriorated sharply because of revival of the infection on a global level due to a new variant, surging crude oil prices, rising prices in general and so forth. Particularly in Japan, the automotive industry, to which many of our major users of small-diameter end mills belong, was significantly affected by the stalled supply of semiconductors and parts. As a result, our business performance was pushed down lower than expected. In the meantime, demands for semiconductors and electronic parts and devices were still strong, which nearly offset the significant decline in the demands for the automotive industry.

Under such an environment, our Group participated in "MECHATRONICS TECHNOLOGY JAPAN 2021 (MECT 2021)," which was held in October 2021 in Nagoya. Many users visited the first physical exhibition held in a while. In preparation for MECT 2021, we renewed our general catalogue for the first time in three years, and launched "MRB3H330," the High Efficient 3-Flute small-diameter Long Neck Ball End Mill for Hardened Steel using the new coating

product "MUGEN COATING PREMIUM Plus," which had been developed for years.

MRB3H330, the High Efficient 3-Flute Ball End Mill that optimizes the shape of the central edge and enables a high depth of cutting and high feed rate in rough machining.



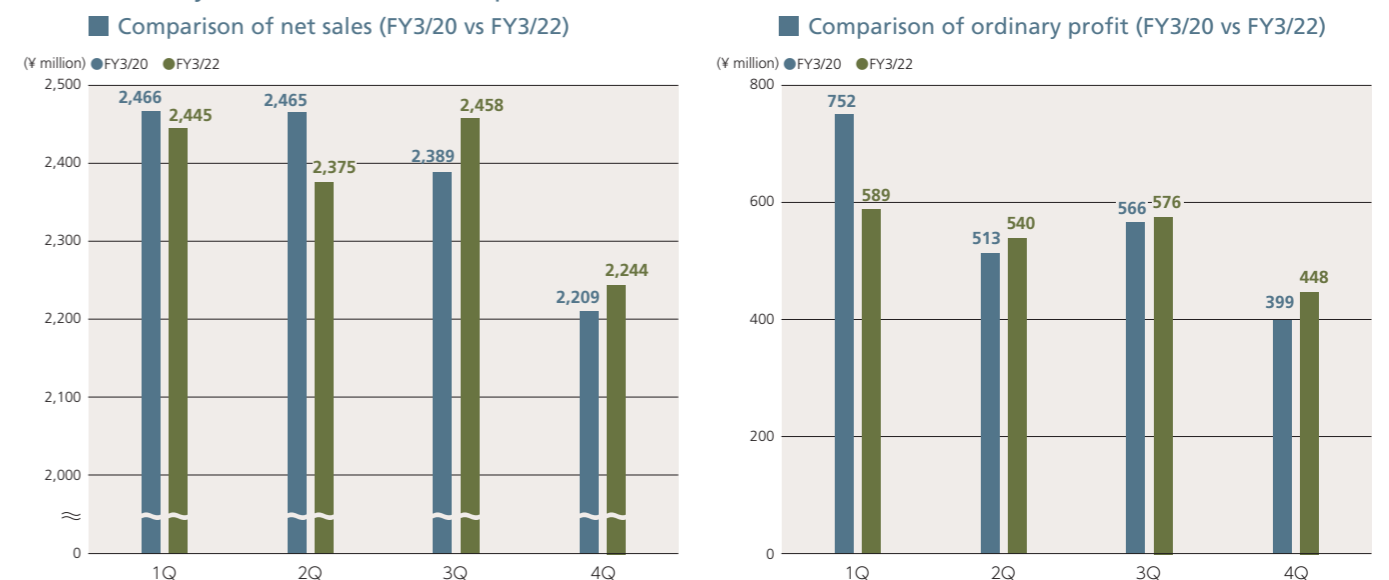
Business environment outlook for FY3/23 onward

Since the beginning of 2022, the U.S.-China trade dispute and the impact of COVID-19 pandemic, as well as the Russian invasion of Ukraine have made the business environment even more unpredictable. And, for our Group's *monozukuri*, rising electricity prices, not to mention the rise in raw materials prices, have started to affect the manufacturing costs. Not only our Group, but also our customer users, who are the manufacturers using our products, share the same situations. Therefore, in general, we have not been able to absorb the steep rise in manufacturing costs.

The business environment is severe, but our Group would like to focus on supporting users who together aim for creating and expanding the precision and micro machining market. Supported by close cooperation of our three core divisions, Development, Production and Sales, I will execute the management from the mid-term perspective so as to continuously create and supply the high value-added products that would lead to the business growth of the users. To meet the goal, we will further strengthen the investment in our business.

From the mid- to long-term viewpoint, potential demands for precision and micro machining remain to be strong, not only because of the ongoing evolution of ADAS (Advanced

Quarterly consolidated business performance in FY3/20 and FY3/22



Driver Assistance System), evolution into EV and FCV, and acceleration of 5G compatibility but also because of the expansion of IoT market supported by these trends. On the other hand, to meet those new demands, I feel the importance of Japanese technologies, capable of dealing with precision and micro machining, has been increasing. This is why I think supporting the user markets, which serve and carry on the trend above, is most crucial.

With respect to the financial forecasts for FY3/23, taking into account the current economic situations, the demand trends, and our business policies, we expect slight increase in the consolidated net sales to increase compared to FY3/22. On the other hand, while we will continue endeavoring to reduce manufacturing costs, we anticipate a slight rise in our cost ratio in line with the rise in the prices of materials, etc. In terms of expenses, we expect that exhibitions that had been successively deferred due to COVID-19 pandemic will resume, and estimates that SG&A expenses will also increase due to greater exhibition and other operating expenses. Additionally, as subsidies, the cancellation of insurance policies and other elements present in FY3/22 will no longer be present, we are anticipating a decrease in non-operating income.

Initiatives for creating the new precision and micro machining market

We have been a member of Micro Manufacturing Association^{*1} since its establishment in 2018. The objective of the Association is to transmit the information of Japanese companies equipped with micro machining technologies and to promote such Japanese companies as a group to enter into the global market. What is interesting about the Association is that there are many member manufactures that are willing to try difficult processing methods and that the participants are comprised of a wide variety of manufactures handling processing and the related industry companies who not only

engage in cutting, but also do plasticity, molding/forming, plating, high output, and joining.

Micro machining business cannot be commercialized by simply possessing machine equipment. You must keep challenging and mastering the evolution of extremely complex technologies, by understanding the usage of the machine equipment through a series of trials and errors, and verifying the results through measurement and other methodologies to replicate best results always in a stable way. This is the field where the Japanese manufacturers possess cutting-edge technologies and allows themselves boast proudly to the rest of the world. We would like to create a new market with the members of the Association and to expand the market globally. Exploring the market in collaboration with the users is one of our Group's mid- to long-term growth strategies.

What should our Group do to achieve it? First, we want to enhance the initiatives to help the users understand our products correctly and use them efficiently. The first step we took was to renew the general catalogue in 2021. Our Group's Sales Division carried out its planning and making on their own from the standpoint of the users, considering what kind of processing is suitable for what kind of materials. With regards to the brochure of products, we devised a method appealing visually by showing a way of processing each product is capable of.

Moreover, our NS Connect^{*2} service was launched as the first user support service in the industry. The service enables users to browse the product information with a two-dimensional code attached to the product package. The launch of a new marketing tool aims at "exploring new users" and "preparing the entrance to our products for those who are new to them." In the future, we would like to increase the number of products adopting NS Connect service and enhance infrastructure in which we can provide more useful information to users who have contact with our Group through various entries.

In November 2021, we established the first Group subsidiary in the U.S.^{*3} Marketing our products and promoting

our Group information is crucial for us to enter into the U.S. market where potential demands for precision and micro machining have become visible, because we need to be recognized and chosen by the US market. We will review the way how marketing should be in an aggressive manner and strengthen the business investment to increase contacts with more users.

*1 For the outline of Micro Manufacturing Association, please see "Voices from NS TOOL Users" on pages 22 to 24.
*2 For the renewed general catalogue and NS Connect, please see "From Sales Site (1)" on page 20, too.
*3 For overseas business of the Group, please see "From Sales Site (2)" on page 21.

Example of adoption of NS Connect



Establishment of the economic foundation that supports the sustainable growth

In November 2021, we announced the establishment of the Basic Policy on Sustainability^{*4}. Key product of our Group is the small-diameter end mills. Using minimum materials to realize high-performance *monozukuri*. We recognize that our Group's business itself contributes to *monozukuri* that is eco- and human-friendly, and such *monozukuri* constitutes a source of social contribution by our Group.

In addition, we have been engaged in establishing the system in which the "way the business should be" is promoted in an employee-driven way. We have obtained ISO9001 (quality management system) certification in 2001 and ISO14001 (environmental management system) certification in 2004. Based on compliance with ISO standards, we established the system in which those goals are individualized for each of the employees working on site, and

implemented the PDCA cycle (the plan-do-check-act cycle). As a result, each employee started to take actions in a self-sustaining manner. We feel that the outcome has started to take a shape that would lead to the growth of our Group.

In association with the transition to the Prime Market, a new market segment of the TSE, we also try to strengthen the corporate governance system. In October 2021, the Remuneration Committee, which was the voluntary advisory committee regarding the decision on remuneration for Directors^{*5}, was reorganized into the Nomination and Remuneration Committee. And it was decided that the Committee would report the determination of the candidates for Directors^{*5} to the Board of Directors. This is how we further enhance the independence and objectivity of Board of Directors' functions.

Furthermore, following the formulation of the above-mentioned Basic Policy on Sustainability, the Sustainability Committee that is composed of executive officers and general managers, was newly established in February 2022, which enables the formulation of KPIs and a system to implement the PDCA cycle. The Audit & Supervisory Committee newly established the Independent External Audit & Supervisory Committee that is composed only of independent external directors, with the aim of collecting opinions of independent directors.

Despite the unpredictable business environment, demands for small-diameter end mills are expanding globally, centering on the field our Group focuses on. We try not to miss the macro-level trend and enhance the business activities and information transmission from the users' standpoint. I would like to ask all of our stakeholders for their continued support for our Group, which aims to create the new market with users.

*4 For the Basic Policy on Sustainability, please see "The Group's sustainability promotion system" on pages 35 to 37.
*5 For both cases, Directors that serve as Audit & Supervisory Committee Members shall be excluded.

Summary of financial results for FY3/22 / financial forecasts for FY3/23

Unit: ¥ million	FY3/21 Actual	FY3/22 Actual	YoY Changes	FY3/23 Forecasts	YoY Changes
Net sales	8,100	9,524	+17.6%	9,690	+1.7%
Operating profit	1,512	2,111	+39.6%	2,110	-0.1%
Ordinary profit	1,712	2,156	+25.9%	2,120	-1.7%
Profit attributable to owners of parent	1,214	1,522	+25.4%	1,440	-5.4%
R&D expenses	388	428	+10.3%	—	—
Capital investment	462	659	+42.7%	1,064	+61.4%
Depreciation	707	692	-2.2%	780	+12.8%
EPS	¥48.55	¥60.89	+25.4%	¥57.83	-5.0%
DPS	¥17.50	¥22.50	+28.6%	¥22.50	—
Dividend payout ratio	36.0%	37.0%	—	38.9%	—

Note: The impact of the share split (1:2) implemented on April 1, 2021 was considered.

Official NS TOOL characters now have new friends.



(Illustration from left:)

Bo-chan, Su-chan, Raji-o-kun, and Connect.

Small and cute characters whose heads were inspired by end mills, were designed with the purpose of disseminating the fact that our Group is specialized in precision and micro machining in Japan and overseas. Each of them has a distinct shape and represents a certain form of end mills (ball, square, and radius). All three have their own specialty. And, a cat "Connect" next to them loves seeing small worlds and having contact with many people.

With the new characters, we will let many people learn about NS TOOL and end mills by introducing the world of precision and micro machining and the products our that Group provides in an easy-to-understand manner.



We try to master the stabilization of high precision and quality, and seek the distinction, instead of mere difference.

Takashi Goto

Senior Executive Vice President, in charge of production/development
NS TOOL CO., LTD.

To hand down our *monozukuri* to the generations to come

As of October 1, 2021, we wrote down the basic conduct of our *monozukuri*, which has been said for the past decades. There were many cases in which the way of conveying the basics varied from person to person and it turned out that the basics started to lose their shape sometimes. So, we strongly wanted to inform employees of the very same words and have the words take root in the future. We have devised ways so that employees learn the basics of *monozukuri* of NS TOOL in a natural manner. We try to instill them in the employees working on site through continuous communication.

As automation of production facilities evolves, people tend to think *monozukuri* can be done only by pushing a button. This is not true. Pushing a button is only an operation. The automation we aim for is the one that can be realized only when human is present. Even when pushing a button, you need to think about the purpose and push it with your intent. We want to value such a way of thinking. While leaving simple operations to machines, humans should support evolution and development of *monozukuri* with their ideas. Those are basics of *monozukuri* of NS TOOL, which is a foundation of our "automation driven by people."

To manufacture high-performance products with stable quality

Recently we are interviewed a lot by newspapers and TV programs. Among such cases, variety TV programs, such as TV Asahi *Zavatsuku! Kinyobi* and TBS *Gacchiri Monday!*, covered us. We are recognized as a manufacturer of small-diameter end mills, because we have supplied the "products that are stable, uniform, and with high-performance".

Our largest theme of *monozukuri* remains to be "making the products highly precise and stabilizing the quality." For precision of the products, we keep making inexhaustible efforts to realize "zero tolerance." To supply the stable and uniform products, capability of each of the employees need

to be standardized at a high level. Even the automated high-performance machines make mistakes or cause problems, and most of the time, such cases occur when humans are involved. Since machines operate only in a way that is designed, it is difficult to manufacture high-precision products in a stable manner unless the level of human capacities improves.

Number of processes of end mill manufacturing is not many, therefore, employees can learn a variety of processes and become multi-skilled workers. With the purpose of enhancing the employees' understanding of each process, we developed *Ishikawa-juku*^{*2}, the training program for multi-skilled workers. We try to achieve the goals of improving the capability of employees who are responsible for the site of *monozukuri* and realizing yield 100%, and further stabilize the quality.

*1 According to NS TOOL terms, "high-performance" refers to high "precision" and "performance."

*2 For activities of *Ishikawa-juku*, please see page 19.

Challenge for the future of *monozukuri* site

We have been engaged in "Small-group Improvement Activities"^{*3} to improve works at *monozukuri* site with the aim of evolving high precision and stable quality, and are glad that the outcome has become visible. Improvement never ends. And, improvement does not always mean large-scale improvement. We think accumulation of small improvements is essential.

Since the theme and method of the improvement activities vary according to the department, we had each team make a presentation of their activities for fair evaluation. The video of the presentations can be browsed at any time on website. Each person involved in improvement activities makes presentations in turn, which helps enhance the employees' presentation skills including the skill of preparing necessary documents.

At the product development site, "Technology Exchange Meeting"^{*4} is regularly held online with our user engineers to

explain our products and learn the needs of people working on site through interviews. In the meeting, engineers exchange opinions without the presence of sales people, which deepens the users' understanding of NS TOOL and leads to exploration of the issues and needs of the users. After the meeting, we make proposals to users, or in some cases, even provide prototypes, so that we can communicate with them in continuous and close manners, which eventually leads us to develop new products.

*3, 4 For "Small-group Improvement Activities" and "Technology Exchange Meeting," please see pages 18 to 19.

Challenge for realizing sustainable growth of *monozukuri*

On February 13, 2021, the Fukushima Earthquake occurred on the coast of Fukushima, measuring intensity 6 upper in Miyagi and Fukushima. When the earthquake occurred, we confirmed that the new base-seismic isolation system of our R&D Center, called "All-round Isolation System"^{*5} worked properly. As a result, we could conduct minimum required tests and, since then, have collected data under a variety of circumstances. Many elements requiring improvements, such as size of the beams of the building and direction of installing the machine, became visible. We will further promote our efforts for improving the *monozukuri* environment for the next generation.

What was worthy of special mention regarding the earthquake was that employees on the site acted very promptly after the earthquake. Owing to the experience in the past earthquakes, the employees voluntarily gathered at the site, confirmed the status, and took measures for recovering in a self-sustained manner. Those actions supported maintenance of utilization rate of the factory, and stable and uniform manufacturing.

We have a department responsible for maintenance and

overhaul of production facilities such as a Tool Grinding Machine "TGM" developed in-house. When there was a problem in the facilities, we had asked the facility manufacturer to respond, but established a system to deal with problems by ourselves more than 10 years ago. We repair and overhaul the machines in-house. This is the strength of our *monozukuri*, which, I feel, leads to the high utilization rate.

*5 A seismic isolation system developed by Okumura Corporation. At normal times, dampers for micro vibration pin the building to control the vibration. When earthquake of intensity 5 lower or above occurs, the pin fractures and the building functions as a normal seismic isolation building.

Show the distinction instead of mere difference from other companies

Our *monozukuri* site will keep focusing on providing stable, uniform, and high-performance end-mill products. Furthermore, we would like to aim for manufacturing products that make users say "We want to use it because it is the end mill made by NS TOOL." We try to develop unique tools, tools that change the way of grinding materials, and cutting-processing technologies so as to become the manufacturer selected by users because we are uniquely distinctive, instead of getting caught in the price competition.

Costs for raw materials and electricity have been significantly increasing because of confusing supply chain due to COVID-19 pandemic and geopolitical risks. It is difficult to respond to them with short-term improvements. We will overcome the current situation through mastering the high precision and stable quality and continuously seeking the distinction.

All new employees work together to make masks!

In 2020, when masks were in shortage due to COVID-19 pandemic, NS TOOL Sendai Factory incorporates mask-making into the training program for new employees who joined us in April. New employees planned and designed the masks by themselves and made the masks for all the employees of Sendai Factory through trial and error. At the presentation session after the program, they reported how interesting it was to manage to make a large number of masks by themselves and how they enjoyed working closely with colleagues.

There is no shortage of masks in 2021 and after, but the mask-making program for new employees continue in Sendai Factory. Senior Executive Vice President Goto who

is in charge of production/development and decided to continue the program, says "The number of masks they make is smaller now. But I think it is valuable that new employees who met for the first time put their minds together to experience *monozukuri*. The masks they made are so precious that I cannot use them."

Masks made by new employees who joined us in April 2021.



"monozukuri" means manufacturing in Japanese.

The history of *monozukuri* supporting the "now" of NS TOOL

1970s	1972	<ul style="list-style-type: none"> • Installs NC machinery made by U.S. Unison Corporation for the first time in Japan. • Enters into mold industry with "Power End Mill," the first in-house brand end mill with unequal spacing 3-flute using high-speed steel. → "Nisshin of Power End Mills" takes root.
	1982	<ul style="list-style-type: none"> • Launches "Cemented Carbide Solid End Mill Power End Mill."
1980s	1985	<ul style="list-style-type: none"> Enters into the automotive mold industry. • Installs CNC-based universal tool grinding machine manufactured by U.S. Hoffman Group, which was used in the U.S. aircraft industry, for the first time in Japan.
	1986	<ul style="list-style-type: none"> • Installs CNC-based universal tool grinding machine manufactured by German WALTER. • Launches "NHR-2 carbide solid deep rib end mill" for the industry-first rib grooves milling for plastic injection molds.
	1993	<ul style="list-style-type: none"> • Launches "Copper Electrodes Cutter Series."
1990s	1994	<ul style="list-style-type: none"> Declaration of specialization in small-diameter tools. (We define "small-diameter" as the end mill diameters 6mm or less.) • Installs CNC-grinding machine manufactured by Rollomatic SA, a major Swiss manufacturer of small diameter cemented carbide end mills, for the first time in Japan.
	1996	<ul style="list-style-type: none"> • Installs "MASAMUNE," an original CNC machine for manufacturing small-diameter cemented carbide end mills.
	1997	<ul style="list-style-type: none"> • Launches cemented carbide end mills "MUGEN COATING Series." (Original coating with excellent wear resistance and lubricity using TiAlN coating.)
	2003	<ul style="list-style-type: none"> Terminates production of high-speed steel end mill "Power End Mill." • Starts in-house developed tool grinding machinery project. • Launches "CBN Super Finish Ball End Mill." (More than twice as hard as cemented carbide, enabling long-term high-precision machining from pre-hardened steel to high-hardness materials.)
2000s	2005	<ul style="list-style-type: none"> • Launches a tool for super micro milling "Micro Edge."
	2006	<ul style="list-style-type: none"> • Develops in-house Tool Grinding Machine "TGM." (CNC tool grinding machine for mass production of micro tools automates tool measurement and transfer, enabling unmanned operation.)
	2007	<ul style="list-style-type: none"> • Starts in-house coating production, industry's first in-house production of product storage cases, and re-grinding business for CBN small-diameter end mills. • Launches "MUGEN COATING PREMIUM 2-Flute Ball End Mill for Hardened Steel." (Upgrade MUGEN COATING, dramatically increasing tool life even in direct milling of high hardness materials.)
	2008	<ul style="list-style-type: none"> • Launches "Micro Drill Series."
	2009	<ul style="list-style-type: none"> • Establishes a new Manufacturing Center. (Currently: NS Engineering Co., Ltd. Headquarters and Main Factory.)
	2012	<ul style="list-style-type: none"> • Launches "Diamond Coating Series." (For processing of graphite and composite materials.) • Launches "PCD Square End Mill." (For finishing of cemented carbide materials.) • Launches "NS-MicroCAM." (CAD/CAM system specialized for precision and micro machining developed by a tool manufacturer.)
2010s	2016	<ul style="list-style-type: none"> • Launches "PCD Ball End Mill (Version Upgrade)." (For mirror-like finished surface of hardened steel materials.)
	2018	<ul style="list-style-type: none"> • Launches "Long Neck Ball End Mill for Copper Electrodes." (Adopting coating and edge profile specialized for copper electrodes. By milling with less burr, ideal for copper electrodes and copper-tungsten machining.)
	2019	<ul style="list-style-type: none"> • Launches "High Efficient "Z" End Mill Series." (By adopting unique design, enabling high-efficiency machining exclusively for stainless steel and carbon steel materials.)
2020s	2020	<ul style="list-style-type: none"> • Completes Sendai Factory R&D Center. • Launches "MUGEN COATING PREMIUM Plus." (By improving "MUGEN COATING PREMIUM" to multilayer coating, enabling high hardness steel machining up to 70HRC.) • Launches "CBN 4-Flute Radius End Mill." (Adopting a new edge profile that reduces milling resistance, improving machining accuracy and speed.)
	2021	<ul style="list-style-type: none"> • Launches "Ball End Mill for 5-Axis Machining."

• Manufacturing infrastructure-related • Product development-related

We proactively have the direct communication with users through Technology Exchange Meeting.

Junichi Kurosawa
Group Manager, R&D Group, R&D Department



R&D Group

R&D Group has R&D Section and Design Development Section that are responsible for product development, and New Business Section responsible for new businesses. R&D Section and Design Development Section are engaged in development of new products and basic research to materialize them. New Business Section, in addition to the basic research on new processing technologies, seeks what kind of new processing or machining is possible by using tools, from the standpoint of users.

Efforts made at the Technology Exchange Meeting with users

The most important mission of Development Group is to develop new products, and in order to search for tips and hints by ourselves, we started Technology Exchange Meeting, where we exchange opinions individually with the user engineers online. Although the meeting is held online due to

COVID-19 pandemic, it is a good opportunity to hear the honest opinions, because participants of both sides are engineers. We have held the Technology Exchange Meeting 60 times since the second half of 2019.

Dialogues away the engineers enable us to explore what is required at the site where users work, and to learn something that would lead to the development of new products. The Technology Exchange Meeting is not a one-off meeting for exchanging opinions, but rather the start for responding the needs of the users. With one particular user engineer, we had eight Technology Exchange Meetings.

Sometimes, our young engineers are given the opportunity to participate in the Technology Exchange Meeting in a studio of the R&D Center, and it becomes ideal occasion for training our junior staff because they can actually see and listen to the conversations with users on the technical matters.

We won the "Parts Award" of "Super" Monozukuri Parts Award for two consecutive years

In 2021 and 2022 consecutively, we won the Parts Award of "Super" Monozukuri Parts Award, which is hosted by Monozukuri Nippon Conference and Nikkan Kogyo Shimbun, Ltd. and gives awards to excellent parts and part materials that contribute to improvement in the competitiveness of Japan's monozukuri and development of the industry and society.

In 2021, our MSBSH330-5X, the new product of 3-Flute Ball End Mill for 5-axis MC (machining center), was awarded. In addition to the performance of the product, "NS Connect," the user support service that allows the user to access various product information

such as processing conditions and examples of processing via a two-dimensional code attached to the product package, was also part of the evaluation.



We continue challenges for realizing the future *monozukuri* of NS TOOL.

Akiyoshi Takahashi

Group Manager, Manufacturing Group, Production Department



Manufacturing Group

Manufacturing Group is composed of Manufacturing Section-1 and Manufacturing Section-2. Female employees account for approx. 20%, and employees under the age of 30 account for approx. 50% of the total number of employees in the workplace, and it is supported by women and young people. Each of them is engaged in the works very seriously with a sense of responsibility that he/she is in charge of the core part of manufacturing small-diameter end mill of NS TOOL.

products, however, clarifying the points to be improved and taking time to take action, lead to a certain outcome. We set up a forum for analyzing *monozukuri* in various manners from the viewpoint other than just "manufacturing," preparing necessary documents, and making a presentation.

Through this activity, we also aim for developing the skills necessary for working professionals. As a result, I feel the activity, which not only contributes to cost reduction and quality improvement but to upskilling, has taken root at the *monozukuri* site.

In 2021, we renewed the name of the activity from "Small-group Improvement Activities" to "Orange FC Activities." "Orange" in the name of the activity refers to the color of NS TOOL, "F" stands for future, and "C" for challenge. We will continue to proactively promote "Orange FC Activities," as improvement activities we put our passionate thoughts that "NS TOOL Group challenges for the future."

From Small-group Improvement Activities to Orange FC Activities

We have implemented "Small-group Improvement Activities" to improve operations since 2018. It was not easy to be engaged in the improvement activities while manufacturing

We try to standardize the skills at a high level via *Ishikawa-juku*.

Yuichi Nomura

Group Manager, Production Control Group, Production Department



Production Control Group

Production Control Group is composed of Equipment Engineering Section, Quality Control Section, and Factory Control Section. Equipment Engineering Section is in charge of maintenance and overhaul of the production facilities. In addition, Education Team conducts education for new employees and training on new skills for mid-level employees. Quality Control Section controls product quality in and outside the Group, and is the first to respond to the request for investigations and complaints given by users. Factory Control Section is in charge of building-related responses such as general affairs, accounting, procurement, and repairs, as well as process management, production management, and IT- and system-related works.

Developing industry-ready employees in *Ishikawa-juku*

Ishikawa-juku, named after the person in charge, was established for personnel education and training using textbook and videos based on its unique curriculum. New employees participate in the training program for six months from April, and each of new employees makes a final presentation at the debriefing session in the end of the program. We keep on brushing up the contents of the training program through feedback at the session by identifying problems of the program.

Training programs are not only for new employees, but mid-level employees also participate in such programs according to their skill and career. The programs contribute to standardization of the skills at a high level because we take time to teach the subject to everyone in the same teaching method. As a result of the training, new employees become ready and play active roles in October when they are assigned to new positions, which leads to the significant production results of the *monozukuri* site.

From Domestic Sales Site



Eisuke Miyazaki

Group Manager, West Group Sales Department

West Group is composed of three bases, Nagoya Office, Osaka Office, and Fukuoka Office. Followings are the types of the user companies. As you can see, compared with East Japan, ratio of automobile- and transportation-equipment-related companies is high in West Japan.

- (1) Chubu: Mainly automobile- and transportation-equipment-related companies, partially aircraft-related companies
- (2) Kansai: Mainly automobile-related companies, electronic-parts- and semiconductor-related companies
- (3) Kyushu: Mainly automobile-related companies, and semiconductor-related companies

Since 2020, a wave of rapid EV conversion has been surging, and the business environment for users is also changing drastically. With the purpose of being chosen by the users in the era of change, we will make efforts to enhance the sales capabilities in a comprehensive manner and develop the new field through cultivating expertise on technologies and human skills that would win the users' trust.



Takeshi Hattori

Group Manager, East Group Sales Department

East Group is composed of three bases, Tokyo Office, Nagano Office, and Sendai Office. Followings are the types of the user companies.

- (1) Tohoku: There are many semiconductor-related companies, and precision-electronic-part-related companies such as multilayer-ceramic-capacitors. *Monozukuri* companies indispensable for "high-speed communication" gather here. The area grows rapidly in terms of *monozukuri* in Japan, because the number of automobile-related users is on a rising trend, and there are companies excel at manufacturing ultra-micro/precision parts.
- (2) Nagano, Niigata: Area with many precision-machining-related companies. In addition to the companies related to electronic parts, PC, printer, watch, and camera, there are many characteristic companies specialized in the field of medical-related micro precision parts and mold.
- (3) Tokyo metropolitan area: There are many small- and medium-sized companies, some of which have high-level technologies. The area is also characterized by the fact that there are research and development divisions of large companies.
- (4) North Kanto, Shizuoka: There are many automobile-related and hobby-related companies. Area with many manufacturing companies.

Processing technologies of users have been developed at an accelerated pace, therefore, we will support their businesses through selling the tools and, at the same time, proposing the best way of using them. And, while making the database of the precious information such as needs of users, which are acquired as the result of sales activities, we try to establish a system that leads to development of new products that have "the unique distinction" instead of "mere difference" from competitors. Our aim is that our activities contribute to increase in the profit of the users, which eventually leads to our profit as well.



Hiroki Matsumoto

Group Manager, Sales Support Group Sales Department

We renewed the general catalogue almost only by ourselves, because we thought it was crucial to promote our products on our own. In the past, we had outsourced the production of the catalogue. With the renewed catalogue, users can search the products by milling purposes because categorization of products was reviewed. In addition, we devised a way to enhance the visual identification by using identification colors and icons. The efforts were made to materialize the brand statement "For Crafting Tomorrow" and one of our passions "manufacturing the tools that shape the future."

Together with the renewal of the general catalogue, we launched the new service called NS Connect, which enables users to browse various product information by loading a two-dimensional code attached to the back side of the product package. The service is being gradually adopted to our products, starting with the new products. It was the first attempt in the tool industry.

At the moment, each marketing tool functions independently, however, we would like to establish a system in which all marketing tools interact with each other in the future.

*If you are interested in the general catalogue and brochure, please see below.
<https://www.ns-tool.com/en/download/>

"monozukuri" means manufacturing in Japanese.

On-site From International Sales Site



Daisuke Iwata
General Manager,
International Sales Department

International Sales Department has business in 31 countries and regions via sales agents in each country/region. Our Group is characterized by made-in-Japan *monozukuri* that sticks to the quality. I think the overseas market values the credibility. In the overseas market, our products that are specialized in precision machining are mainly used for the precision molds.

Among the existing markets of our Group, China where products for smartphone and optical parts grow, and Thailand where there are many Japanese companies and automotive industry prospers, are two major markets.

In the Vietnamese market, which is expected to grow, Japanese manufacturers as well as Korean and Taiwanese manufacturers start to manufacture precision molds. In Europe, our products serve a niche in the automotive, medical, and watch industries in Germany, Italy, France, and Switzerland. In addition, movement in Austria, Poland, and Czech Republic has become visible.

In November 2021, we established NS TOOL USA, INC., a 100%-owned subsidiary, in the U.S. There are demands related to automobile and medical care in Michigan, where NS TOOL USA, INC. is located, and the neighboring area. And, we receive more and more inquiries for precision and micro machining from California, etc.

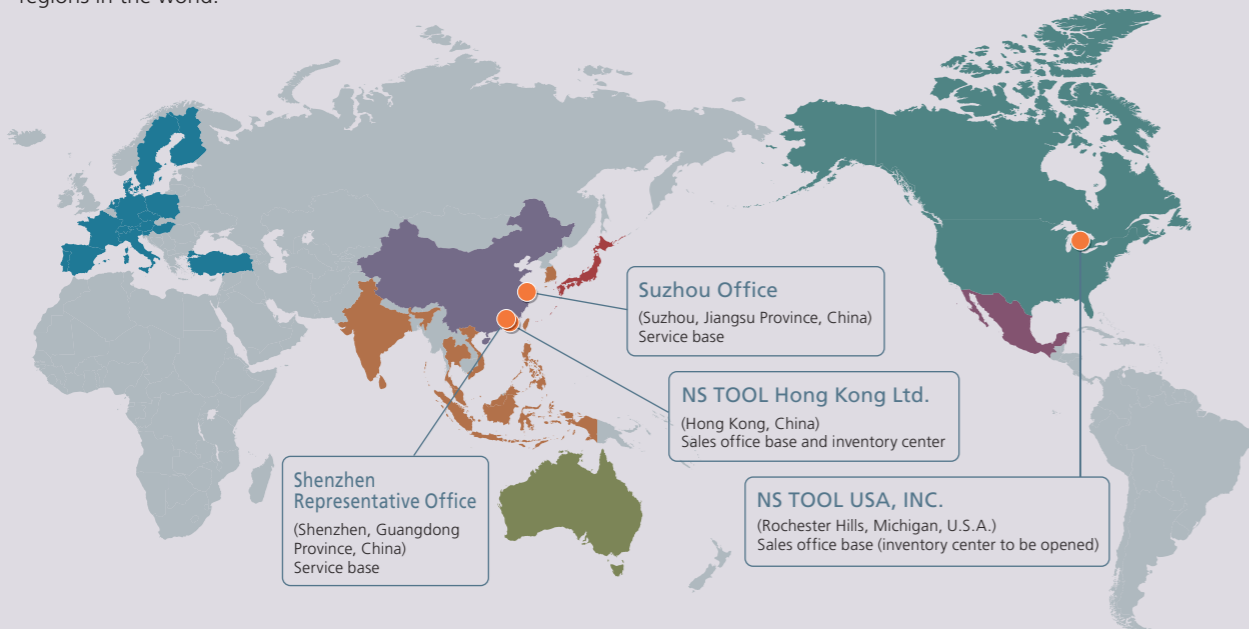
We decided to carry an inventory in the U.S., considering the U.S.'s policy of returning to domestic production and trends of a rising demand for precision and micro machining. As a result, we established the subsidiary in the U.S. This would help us shorten the delivery period and promote sales activities, technical support, etc. for the users via our local base.

International Sales Department will develop the strategies for expanding the sales of high value-added products, and strengthen branding and technical/proposal sales in a complex manner. I think our big mission is to stimulate the demand itself for precision and micro machining in the overseas market.

Global coverage of the Group (as of March 31, 2022)

We have sales bases in Hong Kong, China, and the U.S. and inventory centers in Hong Kong. (Inventory center is planned to be built also in the U.S. in the future.) We conclude a contracts with sales agents in 31 countries and regions in the world.

- Greater China
- Asia
- Europe
- Oceania
- North America
- Latin America



VOICE Introduction of Micro Manufacturing Association



Bringing *BISAI* ("BISAI" means micro manufacturing) to the world

Micro Manufacturing Association was established in November 2018, aiming for transmitting the information about the companies with micro machining technologies and strengthening the cooperation with a view to the global market. NS TOOL has been a member since its establishment. Let us introduce the outline and the unique activities of the Association.

Enhancing the added value with micro machining technologies and being united to explore the world

In terms of pricing, we cannot compete with other countries that have cheap labor. Japan's *monozukuri* would end up being weakened if being involved in the price competition, though it has excellent technologies. Micro Manufacturing Association was established because of such a sense of crisis, and is engaged in transmitting information about the companies with micro machining technologies and strengthening the cooperation that can respond to the higher level of request.

There are 72 member organizations including micro machining businesses, manufacturers of machine tools/cutting tools, trading companies, and graduate schools/research institutes (as of November 2021). Aiming for the activities that explore the world-level new industrial fields, we keep trying every day to make *BISAI* global.

*Micro Manufacturing Association website: <https://bisai-monozukuri.com/en>

Micro machining technology competition, which gathered micro machining technologies throughout Japan, was held

In 2021, a competition called Expert Bisai Creators 2021 for the member companies and their users was held. Its purpose was to disseminate Japan's world-class micro machining technologies and to stimulate the micro machining market. We participated as a special sponsor company.

Among the works entered in the three categories, Watch Category, Jewelry Category, and Free Category, a first-prize winner and a special-prize winner in the Jewelry Category and a first-prize winner and two second-place winners in the Free Category were selected.

The competition is planned also in 2022. This time, students of specialized vocational high school, become also eligible, encouraging younger generations to participate. We are looking forward to seeing what the micro machining of young sensibility creates.

Voices from the first-prize winners of Expert Bisai Creators 2021

First-prize winner of Jewelry Category

Name of work

Four Fluxes of Time pendant

Castem Co., Ltd.

A person in charge of making the model expressed the planar painting three-dimensionally and the two persons in charge of production shared the operations of making each part. Three people were involved in the production. We tried to make the work look more three dimensional by changing the materials of each depth. In addition, 360-degree continuous shape was realized by 5-axis processing. We managed to complete the work, though we spent much time on processing using the small-diameter cutting tool. What makes *BISAI* processing and *monozukuri* enjoyable is that people is surprised by the thing you make. In fact, the works made by the participants surprised us a lot. We would like to deepen the understanding of processing machines and cutting tools for the challenges in the future.

Kenichi Ishioka

Chief of Processing Sec., Manufacturing Department, Production Division



First-prize winner of Free Category

Name of work

Owner of Yatsuumi

hakkai inc.

Since hakkai inc., which is specialized in mold part processing, had no experience in manufacturing the products with complicated design, we groped our way, starting with asking a local industrial designer for the design. We communicated with the designer so many times before the design is finalized. Then it took about a month for processing. We applied the EDM (electric discharge machining), Wire EDM, cutting, grinding, and all the other mold-machining technologies that characterize our company, and assembled the item. We repeatedly faced troubles. However, it was a great pleasure seeing the completed shape of the item after challenging the micro machining, which were new to us. And, sharing the efforts with colleagues who were responsible each process was fruitful experience.

Ryo Koyanagi

Mold Group 1, Technology Department



VOICE **Castem Co., Ltd.**



A half step forward —
We continue to make a step forward while determining what is really important for the human society.

President Toda of Castem Co., Ltd. serves as Chairman of Micro Manufacturing Association because he wants to review the basics of *monozukuri* and to create the group of technology-related companies that are serious about tackling with the technologies meeting the latest needs. He says "Our style is to do what others don't and produce high value." at the interview.

Takuo Toda
President, Castem Co., Ltd.

History of Castem and inexhaustible pursuit of metal part processing

Castem, which was originally established as a confectionary company, set up the department specialized in confectionary machines in 1960. Since then, we have aimed to become a comprehensive manufacturer of metal parts, ranging from mold production to machining. With investment casting, which we brushed up with our original technologies, we have responded to complicated shapes, three-dimensional shapes, and other highly difficult shapes, as well as high-level steel such as titanium.

Then we independently developed metal injection molding (MIM) technology, and currently we are expanding various types of injection molding processing not only in Japan but also in Philippines, Thailand and Columbia, and have a laboratory base in the U.S.

*Please see the website below for the production method of Castem.
https://www.castem.co.jp/technology/lostwax_tech.html

Monozukuri that carefully picks up the works avoided by other companies

Our sales activity style is to carefully pick up the works under the conditions that other companies tend to avoid, such as those of small lot, short delivery period, and high defective rate. I think our company has been needed by the industrial world because we stick to the style of keeping challenge the issues and difficult problems.

Defective rate is high because we challenge difficult works, however, we have created the added value by

accomplishing such challenges. In that sense, we regard a pile of defective goods as a treasure trove. I believe, if we set a reasonable price and overcome the losses for a while, we can gain a proper profit.

Access to the consumer market through challenging the new business

In addition to the business focuses on the B-to-B market, we are engaged in that focuses on the B-to-C market through development and sales of our products. In the IRON FACTORY business, which seeks the further possibilities of metal from the playful point of view, we plan, manufacture, and sell highly original products that are unique to us. And, as part of the meta mate business, which provides the service that delivers the warm thoughts from human to human using metal (materials that effectively deliver warmth of human), we opened a shop in Nihonbashi, Tokyo.

We position the business focuses on the B-to-C market as the seeds for our company's future business. As the number of the original products increases, the system related to them is established. Our current annual goal is 200 items for the original products, and 800 pieces for the order of precised parts, which are our core business. Among them, we would like to apply the technologies that are applicable to other businesses for B-to-B market and get on the path to become a sustainable company, keeping our corporate motto "a half step further" in mind.

Company Profile

Established	February 1970
Capital Stock	¥ 79,960,000
Head Office	Fukuyama City, Hiroshima
Business lines	Manufacturing of metal components using investment casting, metal injection molding, ceramic injection molding, and FRP injection molding, Micro-focus CT scan service and metal and plastic 3D printing service
Number of employees	1,588 (as of March 2022, including employees of the group companies)
Major links	Castem Co., Ltd. https://www.castem.co.jp/ IRON FACTORY https://www.ironfactory-castem.com/ meta mate https://www.metamate.jp/ JINSEKI 15 FARM https://www.jinseki15farm-castem.com/ Pani Pani Farm https://www.panipanicompany-castem.com/ International ORIGAMI PLANE Association http://www.oriplane.com/



VOICE **hakkai inc.**



From Minamiuonuma surrounded by beautiful nature—
With "three Cs" sense of value, we seek the *monozukuri* that no one can imitate.

hakkai inc. overlooks Mt. Hakkai (Minamiuonuma City, Niigata) one of the best 200 mountains in Japan. We interviewed President Seki, who develops business in the global market through putting "three Cs" into practice in his businesses, while leading Micro Manufacturing Association as Vice Chairman, with the aim of "bringing B/SAI to the world with pride" from Minamiuonuma, the city famous for rice and sake.

Akihiko Seki
President, hakkai inc.

A sense of crisis and risk awareness generates further challenges

Fifty-five years have passed since the establishment of the company. Resin molding had been our core business until 1980, when we launched the mold-manufacturing business because the former president feared that there would be no room for growth if there is no "molds" for molding. Establishment of the new business helped us supply the molding parts that meet the needs of the times.

Molding industry at that time was composed of the manufacturers specialized in each field. Hakkai, on the other hand, tried to disperse the business fields and products with the purpose of reducing the risks. What I, who took over the president duties, focused on was entry into the global market, which started in 2004. Stagnation of our growth rate became apparent then. Many other Japanese manufacturers, however, had already developed their international business, which means we were late in the trend.

Under the environment, to start with, we set up a new factory in Thailand. No molding manufacturers could supply the "molds," though there were many molding manufacturers, and it differentiated hakkai from others. After that, we developed a type of *monozukuri* for each market, which differentiated us from other companies, and currently we have bases in Thailand, China, and Mexico.

Realizing the sustainable growth with "three Cs" that we value

There are "three Cs" we value: Challenge, Communication, and Creation. We need to change ourselves in order to offer what the changing society needs from us. And, to that end, we must create something new, that is, creation. Challenges enable creation. Which cannot be done alone. So, communication is needed. I believe materialization of those elements leads to the growth of the company, and eventually, contribution to the society.

We have started further challenges. For a project with a company that develops remote-controlled and AI robots, we were in charge of developing the "hand" part of the robots. With Niigata University, we are engaged in the development of a sensor that senses the robot's tactile perception. In the project with Acuity inc., which deals with measuring and testing DX by image processing and machine learning, we develop and manufacture the testing device using AI.

Through those challenges, we would like to create the new forums for working and set up the environment where people working there can develop their skills, so as to continue to realize our *monozukuri* that no one can imitate. Hakkai aims to be a company that grows and evolves all the time.

Company Profile

Established	July 1967
Capital Stock	¥57,300,000
Head Office	Minamiuonuma City, Niigata
Business lines	Design and manufacture of precision mold, engineering plastic molding, wire winding, assembling, fabricate automated machine, and precision jig
Number of employees	500 (as of March 2022, including employees of the group companies)
Group companies	hakkai inc https://hakkai.jp HAKKAI PRECISION (THAILAND) CO.,LTD. HAKKAI PRECISION (SUZHOU) CO.,LTD. HAKKAI MEXICO S.A. de C.V.



Financial and Non-Financial Highlights

NS TOOL CO., LTD. and Consolidated Subsidiaries

(Unit: ¥ million)

	FY3/13	FY3/14	FY3/15	FY3/16	FY3/17	FY3/18	FY3/19	FY3/20	FY3/21	FY3/22	21/22 Changes
Profit and loss (For the year)											
Net sales	5,997	6,418	7,402	8,382	8,825	9,767	10,476	9,531	8,100	9,524	17.6%
By product											
End mills (Diameter 6 mm or less)	4,193	4,570	5,301	5,931	6,377	7,390	7,832	7,310	6,338	7,449	17.5%
End mills (Diameter over 6 mm)	738	825	925	971	1,033	1,095	1,152	945	739	909	23.0%
End mills (others)	646	586	661	805	788	577	697	614	478	488	2.0%
Other products	419	435	514	673	626	704	793	660	543	677	24.7%
Ratio of small-diameter end mills	69.9%	71.2%	71.6%	70.8%	72.3%	75.7%	74.8%	76.7%	78.3%	78.2%	—
Overseas net sales ¹	1,247	1,268	1,703	1,944	2,167	2,553	2,898	2,916	2,495	2,954	18.4%
Ratio of overseas net sales	20.8%	19.8%	23.0%	23.2%	24.6%	26.1%	27.7%	30.6%	30.8%	31.0%	—
Gross profit (loss)	2,843	3,076	3,707	4,389	4,823	5,528	5,929	5,224	4,137	4,891	18.2%
Selling, general and administrative expenses	1,922	2,006	2,226	2,475	2,810	2,833	3,049	3,005	2,624	2,780	5.9%
Operating profit (loss)	921	1,069	1,481	1,914	2,013	2,695	2,879	2,219	1,512	2,111	39.6%
Ordinary profit (loss)	951	1,107	1,534	1,954	2,026	2,733	2,894	2,231	1,712	2,156	25.9%
Profit (loss) attributable to owners of parent	527	694	973	1,342	1,420	1,903	1,970	1,545	1,214	1,522	25.4%
Cash flows (For the year)											
Cash flows from operating activities	731	1,147	1,619	1,756	1,894	2,910	1,868	1,908	2,526	2,261	-10.5%
Cash flows from investing activities	(886)	(82)	(594)	(1,322)	(787)	(657)	(1,383)	(1,769)	(187)	(348)	—
Free cash flows	(155)	1,065	1,025	434	1,107	2,252	485	138	2,338	1,912	-18.2%
Cash flows from financing activities	(109)	(121)	(186)	(250)	(499)	(562)	(563)	(562)	(438)	(763)	—
Financial status (At year-end)											
Total assets	8,297	9,075	10,339	11,371	12,517	14,467	15,381	16,017	16,936	17,874	5.5%
Cash and deposits	1,913	2,856	3,716	3,898	4,659	6,325	6,209	5,784	7,674	8,543	11.3%
Inventories	1,382	1,466	1,509	1,467	1,592	1,745	2,056	2,201	1,758	1,840	4.7%
Shareholders' equity	7,106	7,678	8,464	9,557	10,652	11,993	13,400	14,383	15,162	15,944	5.2%
Per share data²											
Profit per share (¥)	21.09	27.78	38.92	53.69	56.81	76.12	78.80	61.81	48.55	60.89	25.4%
Net assets per share (¥)	284.16	307.10	339.12	382.66	426.55	479.94	535.74	574.81	605.44	640.58	5.8%
Dividend per share (¥)	4.88	7.50	10.00	12.50	20.00	22.50	22.50	22.50	17.50	22.50	28.6%
Dividend payout ratio	23.1%	27.0%	25.7%	23.3%	35.2%	29.6%	28.6%	36.4%	36.0%	37.0%	—
Financial data											
Gross profit margin	47.4%	47.9%	50.1%	52.4%	54.7%	56.6%	56.6%	54.8%	51.1%	51.4%	—
Ordinary profit margin	15.9%	17.2%	20.7%	23.3%	23.0%	28.0%	27.6%	23.4%	21.1%	22.6%	—
Value added per employee ³ (¥ thousand)	11,481	12,318	14,286	16,535	15,705	17,299	18,004	16,329	14,033	15,878	13.2%
Return on Assets (ROA)	6.5%	8.0%	10.0%	12.4%	11.9%	14.1%	13.2%	9.8%	7.4%	8.7%	—
Return on Equity (ROE)	7.7%	9.4%	12.0%	14.9%	14.0%	16.8%	15.5%	11.1%	8.2%	9.8%	—
Equity ratio	85.6%	84.6%	82.0%	84.2%	85.2%	83.0%	87.1%	89.7%	89.4%	89.2%	—
Research and development expenses	207	231	232	304	366	330	296	364	388	428	10.3%
Capital investment	1,001	469	612	1,295	774	663	1,268	1,755	462	659	42.7%
Depreciation	563	534	474	505	632	625	629	698	707	692	-2.2%
Non-financial data											
No. of employees	281	284	281	280	322	338	343	338	339	348	2.7%
No. of directors	10	9	9	9	9	8	7	8	9	9	—
Ratio of independent directors	20.0%	22.2%	22.2%	22.2%	33.3%	37.5%	28.6%	37.5%	33.3%	33.3%	—
Ratio of external directors	20.0%	22.2%	22.2%	22.2%	33.3%	37.5%	28.6%	37.5%	33.3%	33.3%	—
Ratio of female directors	10.0%	11.1%	11.1%	11.1%	22.2%	25.0%	28.6%	25.0%	22.2%	22.2%	—

*1 Overseas net sales include those via domestic export trading companies.

*2 The impact of the share split (1:2) implemented on April 1, 2021 was considered.

*3 Value added per employee=(operating profit+personnel expenses (including labor costs)+depreciation)/number of employees

Financial Analysis



Review of consolidated financial results for FY3/22

For the summary of FY3/22 consolidated financial results and FY3/23 consolidated financial forecasts, please see "Top Message" on page 11 to 14.

In FY3/22, we were in the state of waiting for a recovery of revenues, while efforts had continued since FY3/21 to reduce manufacturing costs and SG&A expenses, amid COVID-19 pandemic started to show a sign of calming. In the cemented carbide tool industry in Japan, on which the Group is based, in CY2021 domestic annual production amount of cemented carbide tools recovered to ¥279.9 billion, increase by 22.5% yoy, and end mills of which recovered to ¥50.9 billion, increase by 26.3% yoy. In terms of changes in production amount per quarter, the production of 4Q of 2021 recovered to that of 3Q of 2019, to the level just before the serious impact by COVID-19 pandemic.

Regarding our businesses of the Group, rising demands related to electronic devices and semiconductors stably supported the sales. However, after the fall of 2021, automotive industry demands, which were back on course for recovery, stagnated due to the trend of production cut, which cancelled the momentum for recovery. Our overall businesses remained inconsistent throughout the year with ups and downs, while we saw some new demands for medical-related and daily necessities such as syringes and food trays associated with demand for staying at home.

By product, "end mills (diameter 6mm or less)" increased by 17.5% yoy, "end mills (diameter over 6mm)" increased by 23.0% yoy, and "end mills (others)" increased by 2.0% yoy, resulting in the ratio of small-diameter end mills (diameter 6mm or less) decreased by 0.1 percentage points yoy to 78.2%.

By region domestic net sales increased by 17.2% yoy to ¥6,570 million, which means the level of the net sales recovered to that of FY3/20, before COVID-19 pandemic. The trend overseas remained unpredictable, because situations changed repeatedly in each region. However, total overseas net sales increased by 18.4% yoy to ¥2,954 million, hitting a record high. As a result, ratio of overseas net sales increased to 0.2 points yoy to 31.0%.

Net sales in China, Hong Kong, Taiwan increased by 16.9% yoy to ¥1,360 million, hitting a record high. Other Asia increased by 22.8% yoy to ¥761 million, Europe increased by 13.2% yoy to ¥646 million, and the U.S. and Others increased by 32.9% yoy to ¥185 million.

In the meantime, cost of sales increased due to the recovery in net sales and the increase in production volume

to accumulate inventories. However, owing to the efforts to improve production system at the production site which we have focused on since the FY3/21, gross profit margin increased by 0.3 percentage points yoy to 51.4%. SG&A expenses, which were on a rising trend mainly due to increase in sales expenses because sales activities have gradually normalized, eventually ended within the initial budget. As a result, SG&A expenses ratio decreased by 3.2 percentage points yoy to 29.2%. And, operating profit margin recovered to 22.2%.

In FY3/23, we continue to add higher value to the products and reduce the manufacturing costs from the sides of development, production, and sales. However, with the expansion of geopolitical risks, it is concerned that business risks will be increased because of further confusion in global supply chain and pressure of rising manufacturing costs caused by rapid increase in the price of raw materials and fuel prices.

Overview of financial position for FY3/22

Total assets increased by 5.5% to ¥17,874 million, total liabilities increased by 6.1% to ¥1,708 million, and total net assets increased by 5.5% to ¥16,165 million, compared to the end of FY3/21 respectively.

On the asset side, regarding current assets, there was an increase in cash and deposits associated with business recovery, and increase in inventories. Procurement environment for raw materials has become more unpredictable caused by global supply chain disruption. The

Group considers securing the sufficient raw materials and having strategic inventories are most important business investments to fulfill the responsibility for supplying necessary products to user customers. The Group will continue to possess strategically sufficient inventories.

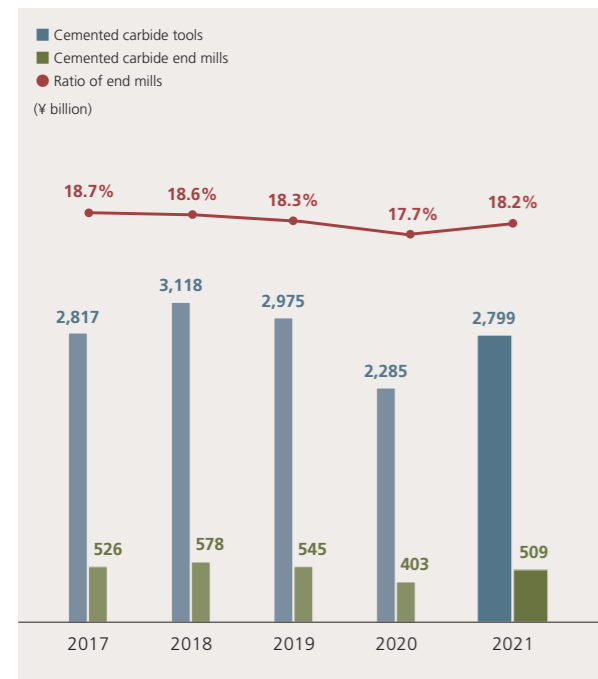
In terms of liabilities, there were an increase in the income taxes payable, provision for bonuses, etc. Net assets increased due to an increase in retained earnings and other factors. As a result, equity ratio declined 0.1 percentage points to 90.4%, compared to the end of FY3/21.

Shareholder returns policy

NS TOOL places one of the highest priorities on returning our profits to shareholders. Our basic policy is to deliver shareholder returns based on business results, while taking into account the earnings to be reserved internally for solid management infrastructures and future expansion of businesses.

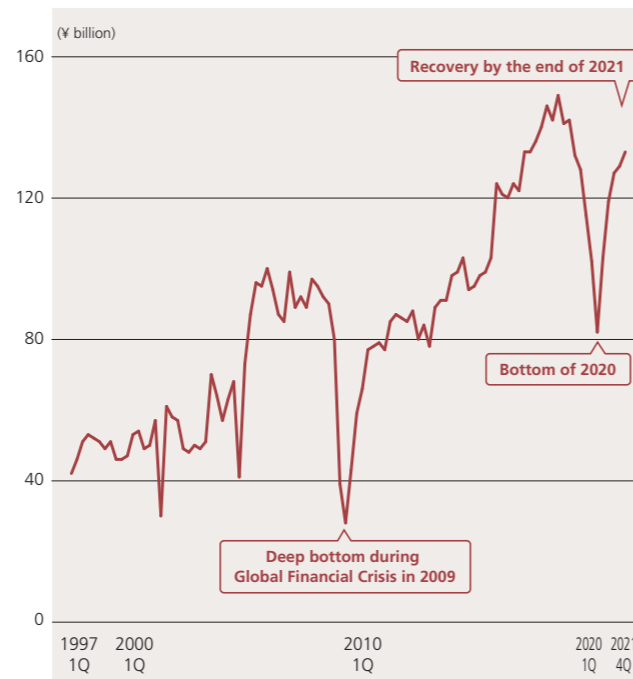
For FY3/22, we have set the interim dividend of ¥10.00 per share, the year-end dividend of ¥12.50 per share, and the annual dividend ¥22.50 per share (dividend payout ratio at 37.0%). For FY3/23, the interim dividend is also expected to be ¥10.00 per share, the year-end dividend ¥12.50 per share, and the annual dividend ¥22.50 per share (dividend payout ratio at 38.9%).

Trends of production of cemented carbide tools and cemented carbide end mills (Calendar Year)



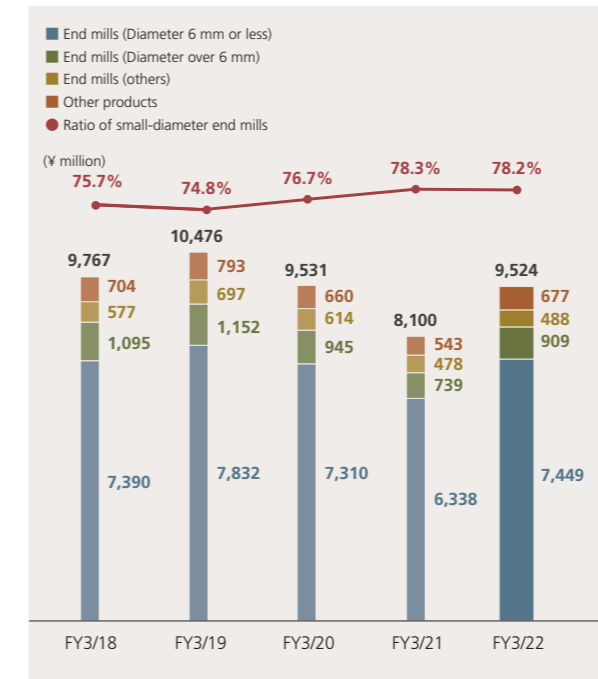
Source: Machinery Statistics, Ministry of Economy, Trade and Industry

Long-term quarterly trend of production of cemented carbide end mills (Calendar Year)

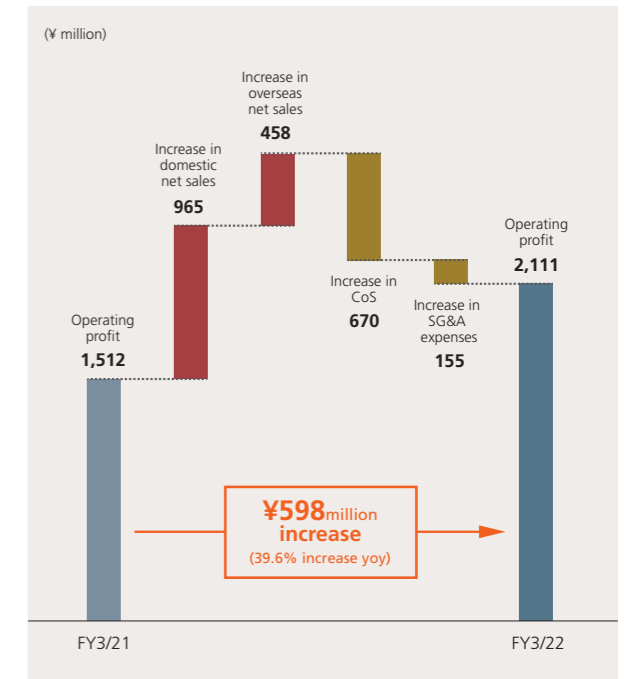


Source: Prepared by the Company based on the Current Production Statistics of the Ministry of Economy, Trade and Industry

Trends of net sales by product and ratio of small-diameter end mills



Analysis on increases/decreases in consolidated operating profit



Profile of Management Team

<p>Hiroji Goto President</p> 	<p>Takashi Goto Senior Executive Vice President</p> 	<p>Yuko Adachi Managing Director</p> 	<p>Hiroji Goto President</p> <p>Apr. 1986: Joined NS TOOL Oct. 1988: Director and Deputy General Manager of General Affairs Group Apr. 1992: Managing Director Jan. 1995: Executive Director, in charge of sales Apr. 2011: Executive Vice President, in charge of sales Jan. 2013: CEO of NS TOOL Hong Kong Ltd. (present post) Apr. 2013: President of NS TOOL Oct. 2016: President of NS TOOL, in charge of sales (present post) Apr. 2021: Representative Director of G-Tech Co., Ltd. (present post) Nov. 2021: President/CEO of NS TOOL USA, INC. (present post)</p>	<p>Takashi Goto Senior Executive Vice President</p> <p>Apr. 1984: Joined NS TOOL Oct. 1988: Director and Deputy General Manager of Production Department Jan. 2002: Managing Director, in charge of production/development Apr. 2009: President of NS Engineering Co., Ltd. Apr. 2010: President of G-Tech Co., Ltd. Apr. 2011: Executive Managing Director of NS TOOL, in charge of production/development Apr. 2013: Senior Executive Vice President of NS TOOL Apr. 2016: Representative Director of NS Engineering Co., Ltd. (present post) Oct. 2016: Senior Executive Vice President, in charge of production/development (present post) Jan. 2021: President of Makino Industry Co., Ltd. (present post)</p>	<p>Yuko Adachi Managing Director</p> <p>Apr. 1978: Joined AIU General Insurance Co., Ltd. Apr. 1985: Joined NS TOOL Sep. 2001: Director and General Manager of General Affairs Department Feb. 2002: Director and General Manager of General Affairs Department, and President of G-Tech Co., Ltd. Jun. 2003: Director of NS TOOL, President of G-Tech Co., Ltd. Apr. 2005: Managing Director of NS TOOL (Information Supervisor) Nov. 2015: President of Makino Industry Co., Ltd. Oct. 2016: Managing Director of NS TOOL, in charge of general affairs/administration (Information Supervisor) (present post) Apr. 2017: Chairman of Makino Industry Co., Ltd. Sep. 2020: Chairman and President of Makino Industry Co., Ltd. Jan. 2021: Chairman of Makino Industry Co., Ltd. (present post)</p>
<p>Satoru Toda Director</p> 	<p>Hiroshi Tajima Director (Audit & Supervisory Committee Member)</p> 	<p>Kazuo Fukuda Director (Audit & Supervisory Committee Member)</p> 	<p>Satoru Toda Director</p> <p>Apr. 1984: Joined Tokai Bank, Ltd. (current MUFG Bank, Ltd.) Oct. 2006: General Manager of Corporation Division 1, Yokohama Branch, Bank of Tokyo Mitsubishi UFJ, Ltd. Oct. 2009: Transferred to Mitsubishi UFJ Securities Co., Ltd. (currently Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.) Apr. 2010: Registered as a Certified Public Tax Accountant (Chiba Prefectural Tax Accountant's Association) Jun. 2014: General Manager of Corporate Business Division 5, Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. Apr. 2020: Joined NS TOOL Jun. 2020: Director and General Manager of CEO Office Feb. 2021: Director and General Manager of Administration Department Jul. 2021: Director, General Manager of Corporate Planning Office and Administration Department (present post)</p>	<p>Hiroshi Tajima Director (Audit & Supervisory Committee Member)</p> <p>Apr. 1985: Joined Universal Securities Co., Ltd. (current Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.) Mar. 2005: Joined NS TOOL as General Manager of Corporate Planning Office Apr. 2010: General Manager of Administration Department Jun. 2010: Director and General Manager of Administration Department Jun. 2012: Executive Officer, General Manager of Administration Department Apr. 2018: Executive Officer, General Manager of Corporate Planning Office Jun. 2021: Director (Full-time Audit & Supervisory Committee Member) (present post)</p>	<p>Kazuo Fukuda Director (Audit & Supervisory Committee Member)</p> <p>Apr. 1974: Joined The Sanwa Bank, Limited (current MUFG Bank, Ltd.) Apr. 1995: Tokyo External Affairs Officer Jun. 1998: Joined The Wakashio Bank, Ltd. as Director and General Manager of Business Development Apr. 2003: Joined NS TOOL as General Manager of Administration Department Jun. 2003: Director and General Manager of Administration Department Jun. 2009: Auditor Jun. 2010: Full-time Auditor Jun. 2015: Director (Full-time Audit & Supervisory Committee Member) Jun. 2021: Director (Audit & Supervisory Committee Member) (present post)</p>
<p>Naoko Fujisaki Independent External Director (Audit & Supervisory Committee Member)</p> 	<p>Toshiaki Hiraga Independent External Director (Audit & Supervisory Committee Member)</p> 	<p>Kenichi Sasamoto Independent External Director (Audit & Supervisory Committee Member)</p> 	<p>Naoko Fujisaki Independent External Director (Audit & Supervisory Committee Member)</p> <p>Apr. 1968: Joined Sumitomo Bank, Ltd. (current Sumitomo Mitsui Banking Corporation) Oct. 1977: Joined MICRONICS JAPAN Co., Ltd. Dec. 2000: Director and General Manager of Accounting Department of MICRONICS JAPAN Co., Ltd. Oct. 2010: Executive Director and General Manager of Planning & Administration Division of MICRONICS JAPAN Co., Ltd. Jun. 2016: Independent External Director (Audit & Supervisory Committee Member) of NS TOOL (present post)</p>	<p>Toshiaki Hiraga Independent External Director (Audit & Supervisory Committee Member)</p> <p>Apr. 1999: Registered as attorney (belonging to Tokyo Bar Association) Oct. 2007: Established law firm, Kitamura & Hiraga, Partner (present post) Mar. 2009: External Auditor of MS&Consulting, Co., Ltd. Apr. 2014: External Director of Polaris Capital Group Co., Ltd. Jun. 2016: Independent External Director (Audit & Supervisory Committee Member) of NS TOOL (present post) Jun. 2016: External Auditor of Human Associates Holdings, Inc. Jun. 2019: External Director (Audit & Supervisory Committee Member) of Human Associates Holdings, Inc.</p>	<p>Kenichi Sasamoto Independent External Director (Audit & Supervisory Committee Member)</p> <p>Jun. 1980: Joined Chuo Audit Corporation Sep. 1998: Senior Partner of Chuo Audit Jul. 2007: Senior Partner of A&A Partners Jun. 2010: External Audit & Supervisory Board Member of TOKATSU HOLDINGS CO., LTD. Sep. 2014: External Audit & Supervisory Board Member of Japan Corporate Housing Service Inc. (current Sun Next Group Co., Ltd.) Sep. 2016: Left A&A Partners Oct. 2016: Opened Certified Public Accountant Sasamoto Kenichi Office Representative of the same (present post) Jun. 2018: External Auditor & Supervisory Board Member of TOKATSU HOLDINGS CO., LTD. Jun. 2019: Independent External Director (Audit & Supervisory Committee Member) of NS TOOL (present post) Jun. 2019: External Director (Audit & Supervisory Committee Member) of TOKATSU HOLDINGS CO., LTD. (present post) Sep. 2020: External Director (Audit & Supervisory Committee Member) of Sun Next Group Co., Ltd. (present post)</p>

<p>Executive Officers</p>	<p>Yuji Goto General Manager of Sales Department</p>	<p>Takashi Koizumi Head of Sendai Factory and General Manager of Production Department</p>	<p>Koichi Okada Head of Sendai Factory and General Manager of Production Department</p>	<p>Masahito Kobayashi General Manager of General Affairs Department</p>
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Corporate Governance

Corporate Governance Structure

The Group has adopted basic guidelines for corporate governance to enhance the transparency and efficiency of its management and to enhance its corporate value in a stable and continual manner in order to meet stakeholders' expectations.

System Diagram (as of March 31, 2022)

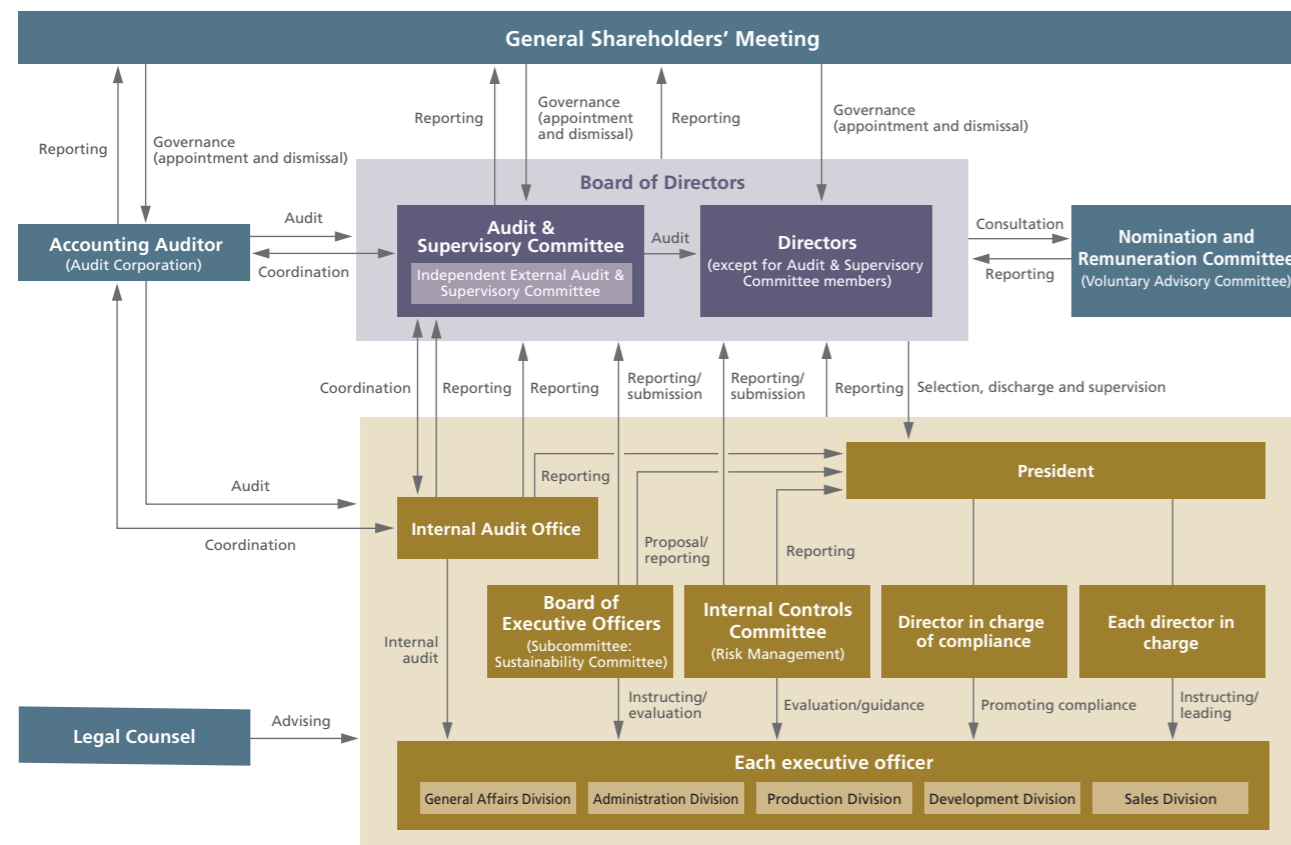


Chart of Structure (as of March 31, 2022)

Corporate governance system	Company with Audit & Supervisory Committee
Number of directors who are not Audit & Supervisory Committee member (External directors out of them)	4 (0)
Number of directors who are Audit & Supervisory Committee member (Independent external directors out of them)	5 (3)
Term of office of directors	1 year (2 years for Audit & Supervisory Committee members)
Incentive provided for directors	Stock option remuneration plan (except for Audit & Supervisory Committee members), performance-linked bonuses (except for Audit & Supervisory Committee members), executive stock ownership plan
Business execution system	Executive officers' system (currently consisting of 4 members)
Optional committees	Nomination and Remuneration Committee (consisting of 3 members: 2 external directors, and 1 internal director)
Accounting auditor	Audit corporation, A&A Partners

Company with Audit & Supervisory Committee

The membership of Audit & Supervisory Committee consists of 5 members (1 full-time Audit & Supervisory Committee member and 4 part-time Audit & Supervisory Committee members, with 3 external directors out of the four). The Committee performs audits on managerial decision-making and the status of business execution. The members of Audit & Supervisory Committee attend important meetings including meetings of the Board of Directors and express necessary opinions. One of the Audit & Supervisory Committee members obtains a full-time position and works to ensure the effectiveness of audits by inspecting draft plans, which have been circulated for permission and approved, forms, contracts, etc., by meeting with the manager of each division, and by enhancing coordination with internal audit division and accounting auditor.

Current status of governance system

The Group's managerial decision-making and business execution processes are as follows.

Important managerial issues are proposed to the Board of Directors for deliberation. With regard to the agenda items of the Board of Directors, efforts is made to enhance the appropriateness and efficiency of the execution by the directors of their duties by, for example, providing the Board of Directors with as much information as possible in advance. The effectiveness of the Board of Directors is also evaluated on a regular basis and efforts are made to improve the content of its operation. The agenda items submitted to the Board of Directors shall be approved or rejected through thorough deliberations and, if necessary, amendments such as adding conditions. Candidate proposals and remuneration proposals for directors (excluding directors who are Audit & Supervisory Committee members) will be consulted to the Nomination and Remuneration Committee and resolved after receiving a report from the Committee.

As for the agenda items that have been approved, executive officers in charge of individual business operation shall bear responsibility to perform the operations and report the status of the business operations they are in charge at the Board of Directors. In addition, the Group has established the Sustainability Committee in-house, which regularly submits reporting and proposals to Board of Directors regarding its own sustainability (aiming for sustainable growth while coexisting with society), including climate change issues.

Directors receive reports from each executive officer, and supervise the status of the execution of their duties. As a rule, the Board of Directors meeting is held monthly. Special meetings of the Board of Directors are convened from time to time when necessary.

Development status of internal control and risk management systems

In order to establish the internal control and risk management systems, the Group has established the organization in which control and management are effectively done. Further, the Group provides a system for approval via internal memos, and conducts business operations based on the rules such as

internal regulations. The Internal Audit Office directly under the control of the President, which is independent from operating departments, conducts internal audits of all the departments including the affiliates inside and outside Japan. In response to the internal control reporting system, the Group has built the Internal Controls Committee, chaired by the Managing Director, to evaluate the development and application status of each control process, and has exchanged views with audit corporation in a timely manner for coordination, so that matters that should be improved can be improved adequately.

External directors

The Company has appointed 3 external directors, both of whom are Audit & Supervisory Committee members.

The role expected as external directors is to check the performance of duties of other Board members (without executing duties themselves) from an objective perspective, so that their duties are fulfilled appropriately via the Board of Directors. With regard to the election of external directors, candidates are required to (i) have a high level of insight with respect to corporate management or abundant experience in the specialty field necessary to fulfill their auditing duties, (ii) have no issues with independence by taking into consideration such factors as relations with the Group, the President and other directors, executive officers and important staff members, and (iii) be able to attend the Board of Directors and the Audit & Supervisory Committee. The Company has designated all the external directors that meet the requirement for independent director as independent directors.

In addition, the Independent External Audit & Supervisory Committee composed of independent director has been established within Audit & Supervisory Committee.

Reasons for the election

Ms. Naoko Fujisaki has an extensive insight and abundant experience as a director of a listed company, as well as extensive knowledge in finance and accounting (she was in charge of accounting, etc. for a period from December 1999 to December 2012 at a listed company).

Mr. Toshiaki Hiraga has not only high-level professional knowledge and experience as attorney but also an extensive insight and abundant experience as external director at other companies.

Mr. Kenichi Sasamoto has an advanced expertise and experience as a certified public accountant as well as his experience and insights as an external board member of other companies.

The three were appointed as external directors (Audit & Supervisory Committee members) based on the Group's judgment that, considering their wide range of knowledge and experience, etc., they will offer objective advices and proposals to ensure adequacy and appropriateness of the decision-making related to the Group's business execution, which will further enhance the management system. Also, the Company deems that the three are adequate to independent directors as they will cause no conflict of interest among general shareholders as they are neither major shareholder of the Group nor former employees of major business partners thereof.

Corporate Governance

Director's Expertise and Experience

Name of director	Audit & Supervisory Committee Member	Nomination and Remuneration Committee	Required fields of experience and Expertise						
			General management	Sales and marketing	Development and production technologies	International business	Finance and accounting	Legal affairs and organizational compliance	ESG and sustainability
Hiroji Goto		●	●	●	●	●			
Takashi Goto			●	●	●				●
Yuko Adachi			●	●				●	●
Satoru Toda						●		●	
Hiroshi Tajima	●							●	●
Kazuo Fukuda	●					●		●	●
Naoko Fujisaki	●	●	●					●	
Toshiaki Hiraga	●	●	●					●	●
Kenichi Sasamoto	●		●					●	●

Board members' remuneration, etc. (FY3/22)

The remuneration of the Company's directors (except for directors who are Audit and Supervisory Committee members) shall be a remuneration system linked to shareholder interests so that it functions sufficiently as an incentive to continuously improve corporate value, and when determining the remuneration of individual directors, the basic policy is to set an appropriate level based on each responsibility.

Remuneration for directors (excluding directors who are Audit and Supervisory Committee members) and executive officers consists of basic remuneration (monetary remuneration) as fixed remuneration, performance-linked remuneration, etc. (monetary remuneration), and share remuneration (non-monetary remuneration).

Considering the role of audits in the execution of duties by directors (except for Audit and Supervisory Committee members) from an objective and independent standpoint, directors who are Audit and Supervisory Committee members

are paid only the basic remuneration (monetary remuneration) as a fixed remuneration.

There is no variable remuneration for directors who serve as Audit & Supervisory Committee members. For performance-linked remuneration, as a short-term incentive, the plan for payment considering the level of contributions made by the individual is formulated based on the total amount and calculated using the following formula: expected consolidated operating profit at the end of the fiscal year multiplied by a coefficient. The proposal is subject to consultation with the Board of Directors before being resolved. With regard to the stock option remuneration plan, as a medium- to long-term incentive, we allocate share acquisition rights, for which a fair appraised amount is set as the amount to be paid.

Board members' remuneration (FY3/22)

Positions	Total amount of remuneration, etc. (¥ million)	Total amount of remuneration, etc. by type (¥ million)				Number of directors eligible for remuneration
		Fixed remuneration	Performance-linked remuneration etc.	Retirement benefits for directors	Non-monetary remuneration, etc.	
Directors (except for Audit & Supervisory Committee members) (except for external directors)	295	156	94	4	40	5
Directors (Audit & Supervisory Committee members) (except for external directors)	27	27	—	—	—	2
External directors (Audit & Supervisory Committee member)	24	24	—	—	—	3

(NOTE) The amount of directors' remuneration does not include the salaries paid as employees to directors who serve concurrently as employees.

Business and Other Risks

Followings are the major risk factors and the status of engagement in those risks in the Group's business.

For details, please see the URL below.

https://www.ns-tool.com/en/ir/data/Summary_of_Business_Results_for_the_Year_Ended_March_31_2022.pdf

Response to infective disease, etc.

Due to the occurrence of a pandemic similar to COVID-19, supplies of products to the market may experience delays or an impact on production networks may occur. The Group introduced a split shift framework and telecommuting framework and has prepared testing kits at various offices and endeavored to prevent the occurrence of internal clusters. In addition, the Group takes the overall measures by splitting the holding of its inventory and promoting a split production network that spans Sendai (Miyagi) and Niigata (Niigata).

Concentration of production and development bases

While streamlining the production and development framework by concentrating its production and development bases in the Northern part of Sendai (Miyagi), the Group has focused on strengthening and thoroughly taking measures against earthquake, and taken the overall measures like possessing inventory, dispersing production bases, etc. However, in cases where a large earthquake or other disaster occurs, the entire production and development framework of the Group will be impacted. The Group has placed the focus of related endeavors on seismic countermeasures at its Sendai Factory in particular. In addition to a further level of ideas and enforcement for regular countermeasures, the Group has incorporated new techniques, such as the All-round Isolation System. As a result, when the earthquakes of intensity 6 upper occurred in the Tohoku region in February 2021 and March 2022, the Group managed to fully recover production in a day or two.

Concentration of small-diameter end mills

Business of the Group is centered on the manufacturing and sales of the small-diameter end mills. While the standard method of precision and micro-machining is cutting using small diameter cemented carbide end mills, in the future, this may be replaced with products containing other materials or new machining methods. The Group has also been developing, manufacturing and otherwise addressing products made with materials other than cemented carbide materials such as CBN (cubic boron nitride) and PCD (polycrystalline diamond), and is pursuing diligent research on other materials as well. As for machining methods, in recent years, many new machining technologies, such as SLS Additive Manufacturing using 3D printers and laser machining, are being developed. The Group will continue to highlight the superiority by providing environmentally-friendly small-diameter end mills, ones that are high performance and have no disparity among them, for reasonable prices.

Competition

In the small-diameter end mill market, major domestic tool manufacturers and companies of other business categories have turned their attention to that growth and have been reinforcing their production and sales framework. Competition will likely further intensify going forward. The Group believes that by focusing its management resources on small-diameter end mills and by the in-house developed dedicated machining tools as well as its development, production and sales framework that specializes in small-diameter end mills, it has successfully constructed a business model to create and provide high value-added products at a low cost, and will proceed to work towards a further level of framework reinforcement.

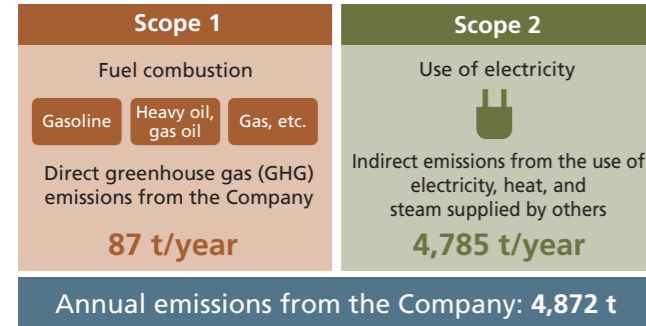
Procurement of raw materials and rise in resource prices

There are concerns about the rising price and tight supply and demand for the major components of cemented carbide end mills, such as tungsten and cobalt (binding agent,) both of which have become major problems being referred to as the "conflict minerals" by the issue of human rights violations in the mining process. The Group enforces the traceability, and while eliminating the intermingling of conflict materials using methods such as receiving the certificates from suppliers, it selects suppliers who are capable of long-term, stable supply as it engages in the procurement of materials. Additionally, regarding increase in the cost associated with the rise in the price of materials, the Group believes that it can absorb said rise in the price of materials to a certain degree through cost-lowering activities.

Environmental issues

The Group conducts the business activities in an environment-friendly manner in accordance with ISO and the Basic Policy on Sustainability. At the same time, social demands for environmental consideration are growing by the day, and the Group is being called upon by various stakeholders to respond from an even higher line of sight. The Group has established the Sustainability Committee that regularly report and discuss environmental issues in the Group to the Board of Directors, formulates KPI for various departments based on the "Basic Policy on Sustainability," and incorporates a policy of addressing the environment in its management targets. As for the accommodation of climate change, the Group will commence the disclosure of information based on TCFD.

Information disclosure about climate change based on TCFD



As part of the promotion of sustainability, the Group starts to disclose the information about climate change based on the recommendation of Task Force on Climate-related Financial Disclosures (TCFD). Followings are the status of the Group's response to TCFD.

	Governance	Strategy	Risk management	Indicator and goal
Required response	Establishment of the company structure responding to risks and opportunities caused by climate change.	Identification of risks and opportunities caused by climate change based on the scenario, formulation of the strategies to respond to them.	Establishment of the management methods for risks and opportunities caused by climate change, and strategies, etc. to respond to them.	Evaluation of risks and opportunities caused by climate change, and setting of indicators and goals that are used in the course of management.
Status of the Group's response				
Status of response	◎	○	◎	○
Description of activity	The system, the Sustainability Committee examines the issues related to climate change on a regular basis and the Board of Directors deliberates on them (at least twice a year).	In the process of identifying the risks and opportunities after setting the perspective based on 2-degree and 4-degree scenarios and examining the mid-term strategies based on the scenarios. Financial impact has not been calculated.	Based on the mid-term strategies and ISO, the methods are made into the specific KPIs in the "environment" section of the materiality KPIs. Sustainability Committee implements the PDCA cycle and make a report to the Board of Directors.	The Group decide to manage with annual GHG emissions and emissions of Scope 1 and 2 have been calculated. A year will be spent for examination on the calculation of Scope 3 and the reduction goals for Scope 1 and 2.

Corporate Data/Stock Information (as of March 31, 2022)

Corporate Data

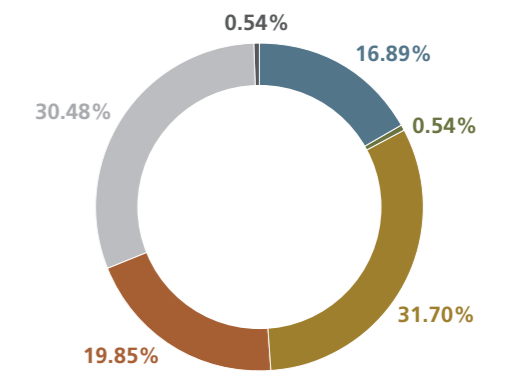
Company name	NS TOOL CO., LTD.
URL	https://www.ns-tool.com/en/
Representative	Hiroji Goto
Headquarters	6F. Sumitomo Fudosan Oimachi Ekimae Bldg., 1-28-1 Oi, Shinagawa-ku, Tokyo 140-0014
Established	December 1954
Capital stock	¥455,330,523
Number of employees	348 (Consolidated)
Business	Manufacture and sale of cutting tools
Products	Cemented carbide end mills for molds and parts processing
Banks	MUFG Bank, Ltd. and Mizuho Bank, Ltd.
Subsidiaries	G-Tech Co., Ltd. NS Engineering Co., Ltd. Makino Industry Co., Ltd. NS TOOL Hong Kong Ltd. NS TOOL USA, INC.
Securities exchange	Prime Market of the Tokyo Stock Exchange

Stock Information

Number of authorized shares	38,400,000
Number of issued shares	25,035,034
Number of shareholders	8,418

Composition of Shareholders

- Financial institutions (14 shareholders, 4,228,900 shares)
- Financial instruments dealers ... (19 shareholders, 134,778 shares)
- Other corporations (82 shareholders, 7,937,008 shares)
- Foreign corporations, etc. (68 shareholders, 4,969,435 shares)
- Individuals and others (8,234 shareholders, 7,629,775 shares)
- Treasury stock (1 shareholders, 135,138 shares)

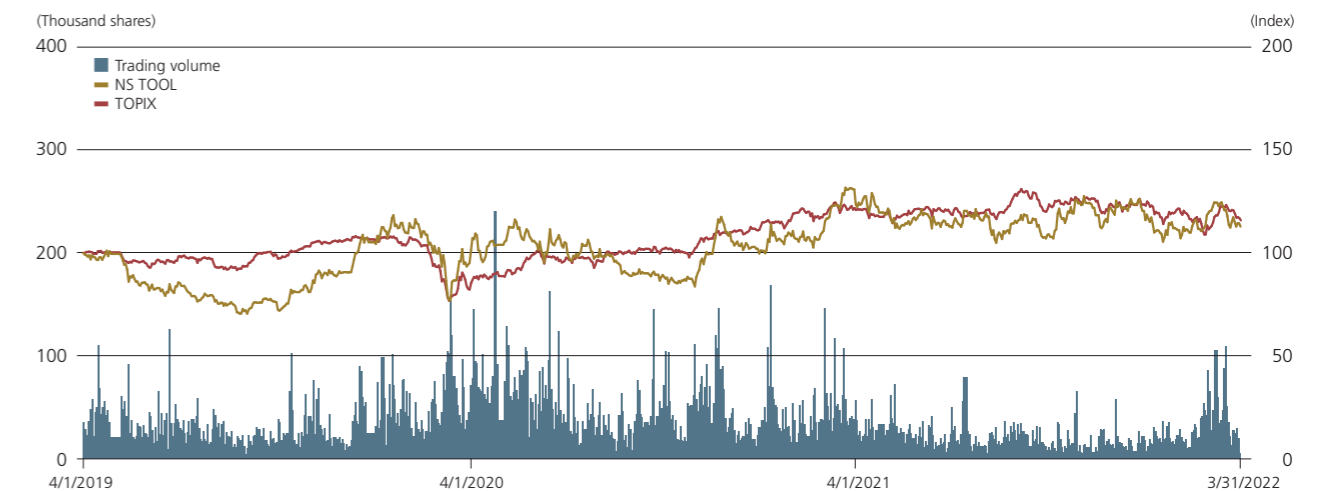


Major Shareholders

Shareholder Name	Number of Shares Held (thousand shares)	Shareholding Ratio (%)
M.Y. CORPORATION, Inc.	2,497	10.03
Solpty Co., Ltd.	2,435	9.78
The Master Trust Bank of Japan, Ltd. (trust account)	2,223	8.93
NORTHERN TRUST CO.(AVFC) RE FIDELITY FUNDS (Standing Proxy: The Hongkong and Shanghai Banking Corporation Limited, Tokyo Branch)	1,899	7.63
TI Road Co., Ltd	1,847	7.42
BANK JULIUS BAER AND CO., LTD. (Standing Proxy: MUFG Bank, Ltd.)	1,293	5.19
NORTHERN TRUST CO. (AVFC) RE HCR00 (Standing Proxy: The Hongkong and Shanghai Banking Corporation Limited, Tokyo Branch)	1,078	4.33
Custody Bank of Japan, Ltd. (trust account)	841	3.38
Hiroji Goto	649	2.61
Takashi Goto	649	2.61
Yuji Goto	649	2.61

Note 1: The number of shares less than a thousand is truncated.
Note 2: M.Y.CORPORATION, Inc., Solpty Co., Ltd. and TI Road Co., Ltd. are asset management companies of Hiroji Goto, Takashi Goto and Yuji Goto, respectively.

Trends of Stock Price/Trading Volume/TOPIX



NOTE: This chart contains split-adjusted stock prices and trading volumes; stock prices and trading volumes before stock split have been adjusted retroactively. NS TOOL's stock prices and TOPIX values are calculated, assuming that the closing price data of April 1, 2019 is 100.



We support 2022 Super Minimum Challenge (SMC) Project.



In 2022, too, a team led by Takushi Chikakane that is supported by the Group participates in Bonneville Motorcycle Speed Trials, an annual event held in the U.S. In the name of Super Minimum Challenge (SMC), the team has updated the world record by pushing the limits of its speed with the 50-cc and 125-cc modified machines carrying the minimum but strongest engine.*1 We have sponsored the team Chikakane since 2018 to support the ultimate monozukuri. The team aims at another updated world record this year.

*1 In 2019, the team achieved the world's fastest-speed record in the six categories in the 50cc+supercharger and 125cc+supercharger classes.

Shareholder Memo

Fiscal year	From April 1 to March 31 of the following year
General shareholders' meeting	1. Ordinary general meeting of shareholders: held in June every year 2. Extraordinary general meeting of shareholders: held as needed
Shareholder registry administrator Special account administrator	Marunouchi 1-4-5, Chiyoda-ku, Tokyo, Japan Mitsubishi UFJ Trust and Banking Corporation
Location of operations	Marunouchi 1-4-5, Chiyoda-ku, Tokyo, Japan Securities Agency Division, Mitsubishi UFJ Trust and Banking Corporation
Contact & mailing address	1-1, Nikko-cho, Fuchu-shi, Tokyo, Japan Securities Agency Division, Mitsubishi UFJ Trust and Banking Corporation 0120-232-711 (toll-free in Japan) [Mailing Destination] PO Box 29, New Tokyo Post Office, 137-8081, Japan Securities Agency Division, Mitsubishi UFJ Trust and Banking Corporation
Public announcements	Notices will be posted in electronic format. However, notices will be published in the Nihon Keizai Shimbun (Japanese newspaper) when an electronic notification is not possible for unavoidable reasons.

Notes:

- (1) In principle, the account administrator with whom you hold an account (e.g., securities firm) receives requests for change of shareholder's address, instruction to purchase, and other operations. Please contact the securities firm, etc. with whom you hold the account. Please note that the shareholder registry administrator (Mitsubishi UFJ Trust and Banking Corporation) cannot handle such matters.
- (2) With regard to operations concerning shares recorded on the special account, Mitsubishi UFJ Trust and Banking Corporation shall serve as the account administrator. Please contact them regarding such shares. Branches of Mitsubishi UFJ Trust and Banking Corporation throughout Japan will assist you as well.
- (3) The main office and branch offices of Mitsubishi UFJ Trust and Banking Corporation will pay dividends not received.

Contact Us

NS TOOL CO.,LTD.

6F. Sumitomo Fudosan Oimachi Ekimae Bldg., 1-28-1 Oi,
Shinagawa-ku, Tokyo 140-0014
Phone: +81-3-6423-1135 Fax: +81-3-6423-1186
Email: ir@ns-tool.com

