

DMG MORI

COMPANY LIMITED

AUTOMATION

DIGITIZATION

ADDITIVE MANUFACTURING

dynam.i.c

EXCELLENCE

TECHNOLOGY EXCELLENCE

DMG MORI QUALIFIED PRODUCTS

**ANNUAL
REPORT
2019**

Fiscal Year 2019
(January - December)

Annual Report 2019
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Financial Highlights

EUR / JPY FY	Million yen				Million EUR			
	2016	2017	2018	2019	2016	2017	2018	2019
Profit or loss								
Sales revenues	376,631	429,664	501,248	485,778	3,130	3,392	3,843	3,979
Operating income	1,961	29,391	36,261	37,339	16	232	278	306
(Ratio of operating income to sales revenues)	0.5%	6.8%	7.2%	7.7%	0.5%	6.8%	7.2%	7.7%
Earnings before income taxes	-1,064	24,803	31,275	31,451	-9	196	240	258
Net income	-5,749	15,676	19,374	18,861	-48	124	149	154
Income attributable to owners of the parent	-7,826	15,263	18,517	17,995	-65	120	142	147
Cash flows								
Cash flows from operating activities (A)	18,237	31,423	49,398	43,647	152	248	379	358
Cash flows from investment activities (B)	-10,008	-1,387	-19,020	-23,546	-83	-11	-146	-193
Free cash flows (A+B)	8,229	30,036	30,378	20,101	68	237	233	165
Equity								
Equity attributable to owners of the parent	100,449	107,617	111,113	124,006	835	850	852	1,016
Total assets	558,222	567,411	528,423	524,606	4,639	4,479	4,051	4,297
Ratio of equity attributable to owners of the parent ^{*1}	18.0%	19.0%	21.0%	23.6%	18.0%	19.0%	21.0%	23.6%
Per-share information								
Equity per share attributable to owners of the parent ^{*2}	836.25	886.73	910.25	1,008.36	6.9	7.0	7.0	8.3
Dividend per share	26	40	50	60	0.2	0.3	0.4	0.5
Other management indicators								
Ratio of income attributable to owners of the parent (ROE) ^{*3}	-6.1%	14.7%	16.9%	15.3%	—	—	—	—
Return on Assets (ROA) ^{*4}	0.3%	5.2%	6.6%	7.1%	—	—	—	—

*1 Equivalent to shareholders' equity ratio. Divided the equity attributable to owners of the parent company by total assets.

*2 Equity attributable to owners of the parent company per share includes hybrid capital.

*3 Equivalent to Return on Equity. Divided the income or loss attributable to owners of the parent company by the average of equity attributable to owners of the parent company at the beginning of the period (end of the previous period) and the end of the period.

*4 ROA is calculated by dividing operating income by the average of total assets as of the beginning of the period (end of the previous period) and as of the end of the period.

Mission Statement

As a global corporation continually striving to be the world's largest and most respected international manufacturer of turning centers, machining centers, multi-axis turning centers and grinders, we will:

Enable our customers to maximize their advantages and excel in their respective markets by continually striving to provide innovative, accurate, and trouble-free machines at competitive prices;
 Increase our customers' productivity and efficiency through our latest developments in technology as manifested by our increasingly accurate and progressive manufacturing capabilities;
 Support our customers with our knowledgeable and responsive sales, applications, and service personnel.

As befits a worldwide corporation, we will:

Foster a fair and open corporate culture, utilizing appropriate management initiatives;
 Emphasize company-wide communication with the recognition of earnest and enthusiastic team-oriented efforts;
 Respect each other's opinions and continually develop through friendly competition in energetic and cheerful workplaces.

As profitability is a goal of all healthy business organizations and in keeping with the true nature of the machine tool industry, we will:

Work to increase the value of our company, the investment of all shareholders knowledgeable of the true nature of the machine tool industry and the prosperity of our partners;
 Always remember that the pricing of our products and services is an integral factor of the prosperity and perpetuity of the corporation;
 Generate suitable profits to ensure the cash flow necessary to provide for the healthy operation of our corporation, research and development, stable customer services, employee training and development, and, the maintenance of safe and efficient manufacturing facilities.

As an industry leader and responsible corporate citizen, we will:

Contribute our fair share to our local community and society;
 Conserve environmental resources at all times to preserve the global environment;
 Incorporate the highest standard of ethics while still encouraging an aggressive approach to our business activities.



This Annual Report was created by referring to the "Guidance for Collaborative Value Creation" by Ministry of Economy, Trade, and Industry of Japan and "The International <IR> Framework" by the International Integrated Report Council.

Message from group CEO



Masahiko Mori

DMG MORI Group CEO
DMG MORI CO., LTD. President, Dr. Eng.
DMG MORI AG Chairman of the Supervisory Board

For the fiscal year of 2019 (from January 1 to December 31), the sales revenues were 485,778 million yen (3,978,500 thousand EUR), the operating result was 37,339 million yen (305,800 thousand EUR), and earnings before taxes were 31,451 million yen (257,600 thousand EUR). The income attributable to owners of the parent was 17,995 million yen (147,400 thousand EUR).

Breakthrough technological innovations occur every 10 years in manufacturing sites where machine tools are used. As one of the business strategies, DMG MORI promotes shop automation and digitization that leverage 5-axis control, multi-axis and additive manufacturing machines as a manufacturing platform in an effort to provide cutting edge production equipment that meets the technical demand of the new era for customers.

Process integration achieved by 5-axis control and multi-axis machines leads to increasing demand for automated transportation and measurement, and it brings about the advancement in the sensing technology that utilizes the digital technology, and AI enabled data analytics. This series of events creates a virtuous circle of technological progress in which machine tools get more sophisticated and intelligent through the results learned from it.

As to additive manufacturing, the technology can bring new business opportunities to customers because of its capabilities of machining complex shaped workpieces and producing lighter components, which was impossible with subtract technology.

We own ample knowledge and know how on machining technologies and peripherals accumulated through Technology Cycles and DMQP initiatives. The business alliance with NIKON CORPORATION announced last November enables us to apply their measuring and camera technologies to our machine tool, which will further enhance the performance and value of the machines.

With our solid global sales and repair organization, we have been focusing on direct contact with customers to quickly respond to customer needs such as machine replacement and consultation on cross border capital investment. We will accelerate the said virtuous circle using foresight and wisdom, and aim to be a total solution provider that boosts the operation rate of an entire shop for every customer.

As for technological aspects, we developed the LASERTEC 30 DUAL *SLM* and presented the machine at Pfronten Open House

as a world premiere model in February 2020. Equipped with dual lasers, the machine increased its productivity by 80%. The new filter system which is not affected by materials also ensures higher machine durability and safety. The LASERTEC 30 DUAL *SLM* is suited for prototyping and gives a competitive edge and satisfaction to customers in the aircraft, medical, and die & mold industries. We are also expanding the product lineup that comes standard with our original technology “Zero Sludge Coolant Tank,” with which coolant is stirred to prevent sludge accumulation and the sludge is efficiently collected in the tank. We will continue developing new products that can provide optimal and cutting edge solutions for customers across the world.

As for sales, we participated in Mechatronics Technology Japan 2019 in October and showed some technologies not displayed at the venue in videos as well as giving live demonstrations on actual machines, and successfully received a large volume of orders and inquiries. In December, we took part in International Robot Exhibition 2019 held in Tokyo for the first time to present advanced solutions for shop automation and digitization. At the event we made live demonstrations of an autonomous traveling robot “WH-AGV 5” and showcased production systems that ensure a continuous 24 hour operation and high mix, low volume production. As for private shows, we held open houses where customers could experience our advanced technologies at the Famot Plant in Poland in October; the Seebach Plant in Germany in November; and the Pfronten Plant in Germany this February. They all received favorable reviews.

Under the motto of “Play Hard + Be Dynamic,” “Study Continuously + Be Open,” and “Work Together + Be Innovative,” DMG MORI promotes a company culture in which employees autonomously manage their own time, live fulfilled lives with physical and mental well being, and keep improving their skills. We set an upper limit of annual working hours for 2020 in order for the employees to further increase working efficiency within given hours while improving essential aspects of work and studying new production systems through the company wide TQM activities.

As to our approaches to preserve the environment, we began to create solutions to make our operations in Germany CO₂-Neutral. In Japan we use photovoltaic systems and proceed with tree planting and research on biomass power generation. We grant scholarships to doctoral course students through the Mori Manufacturing Research and Technology Foundation to

develop competent experts for future advancement of the machine tool industry. We will fulfill the social responsibility demanded of a company that has stake holders all over the world, and continue increasing the corporate value through sustainable growth.

New orders for machine tool-related products during the fiscal year 2019 (January to December) totaled 409.4 billion yen, down 23% from the previous year. The share of 5-axis and multi-axis machines for process integration increased to 64%, and the order unit price was also up approximately 6% compared to the 2018 result thanks to the progress in shop automation and digitization in manufacturing industries. The orders for machine repair services and spare parts posted a solid growth with an increase of 3%.

By region, orders in Japan posted a year-over-year decline of 42% due to a significant reactionary fall in demand after the expanding market trend of the previous year. In the Americas and the Asian region including China, the orders were down 27% and 29%, respectively. On the other hand, EMEA including Germany, which accounts for 54% of the total orders, decreased 24% from the comparable period of 2018.

By industry, the orders in the aircraft, medical-related and die & mold industries were fairly stable. In the semiconductor equipment industry, which has suffered a steep drop since the second half of 2018, the number of inquiries is finally on the rise and we see a positive sign of bouncing back from the downturn. For the automotive-related industry, the market continues to be sluggish because the demand for automobiles is in a correction phase, and the industry remains in a wait-and-see attitude towards the ongoing technological transition.

Since the past two years' first quarter total had reached its peak at 148.6 billion yen in 2018 (January to March) quarterly orders have been on the decline to 88.0 billion yen in the fourth quarter of 2019 (October to December). We believe that the demand is currently near the bottom and customers' concern about shortage of manpower and engineers, and their strategy towards the issue in a mid-to long-term perspective remain the same. DMG MORI is committed to increasing orders by facilitating shop automation and digitization with process integration and additive manufacturing machines as its main strengths.

(Euro amount is converted from yen at 122.1 yen, the average exchange rate between January 1 and December 31, 2019).

Message from Germany



Christian Thönes

DMG MORI AKTIENGESELLSCHAFT
Chairman of the Executive Board
DMG MORI CO., LTD. Vice President

2019 was a very successful year for DMG MORI AKTIENGESELLSCHAFT (AG), with new record values - and that in a difficult market environment. As “Global One Company”, we have dynamically advanced our future fields - in particular, Automation, Digitization and Additive Manufacturing.

This is reflected by our business figures: Whereas the machine tool industry in part suffered significantly higher losses, our order intake performed better and reached EUR 2,563.1 million as planned. Sales revenues of EUR 2,701.5 million once again surpassed the record figure of the previous year (EUR 2,655.1 million).

We also achieved further growth in earnings and reached new highs: Our EBITDA rose to EUR 299.8 million (previous year: EUR 280.8 million). The EBIT rose to EUR 221.7 million (previous year: EUR 217.1 million), the EBIT margin stayed the same as in the previous year at 8.2%. The EBT amounted to EUR 219.1 million (previous year: EUR 214.8 million).

As at 31 December 2019, the group reported EAT of EUR 154.4 million (previous year: EUR 149.5 million). The financial position also continued to develop positively: The free cash flow rose to a record figure of EUR 168.8 million (previous year: EUR 154.2 million).

DMG MORI stayed on course compared to the industry. Even in difficult times, our focus is on the future, making us a strong, reliable and sustainable partner for our customers, suppliers and employees. This is made possible by the combination of dynamic and excellence at our company.

Our customers expect efficiency, precision, reliability and a long life-cycle from our machines - in short: excellent quality. At DMG MORI this has top priority. More service employees, data-based digital offers such as “my DMG MORI”: Through numerous measures we have strengthened our claim to excellence in Services in 2019. Our goal is clear: We want to be the No.1 for our customers in this area, too.

Our employees are the most important key to our success - this is true more than ever before in the digital era. We are pursuing a premium standard that we will only meet with the aid of highly qualified and motivated employees. For this reason, DMG MORI places a high value on being an attractive employer. Trust, transparency and commitment are important to us. We stand for a corporate culture of diversity and openness. Even in turbulent times we offer stability.

With respect to sustainability, we feel a particular corporate responsibility. Here, too, we take a comprehensive approach: from our products, services and buildings and our infrastructure to our suppliers, customers and employees. In this way our automation and digitization solutions guarantee the highly-efficient use of our machine tools around the clock. The higher the productivity, the more advantageous the use of materials and energy is - and the better the sustainability balance. Through numerous social projects and initiatives, we are actively supporting society.

For 2020 we have gone even further and set ourselves a particularly ambitious goals: This year DMG MORI will be CO₂-neutral. We are thus once again setting benchmarks!

As “Global One Company”, we are well-positioned-technologically, structurally and culturally. We have a very sound management team, a unique combination of dynamic and excellence, and a clear strategy for the future. Above all, however, the confidence and trust that our customers, suppliers, employees and partners place in us encourages us to once again achieve all our goals in 2020.

And because growth needs strong roots, we are also looking back at the past: In October our company has been existing for 150 years and in December DECKEL MAHO Pfronten will turn 100 years old. We are proud of this long standing tradition. Our recipe for success has remained the same all this time: motivated employees and satisfied customers.

For this reason, dear shareholders, we will once again give our best in the current financial year - with dynamic, excellence and commitment. Your trust is the basis upon which DMG MORI will also achieve success in 2020. We are delighted to know that you will remain at our side. Many thanks!

Introduction of Directors



President,
Dr. Eng.

Masahiko Mori

Vice President

Christian Thönes

Executive Vice President

Hiroaki Tamai

Executive Vice President

Hirotake Kobayashi

Executive Director,
Dr. Eng.

Makoto Fujishima

Executive Director,
J.D.

James Nudo

External Director,
Ph D.

Tojiro Aoyama

External Director,
Dr. Eng.

Tsuyoshi Nomura

External Director
Attorney

Makoto Nakajima

External Director

Takashi Mitachi

Corporate Auditor

Toshio Kawayama

External Auditor,
Dr. Eng.

Sojiro Tsuchiya

External Auditor

Yoshinori Kawamura

DMG MORI in 2019



January

Pfronten Open House



May

Chicago Innovation Days
The 117th Annual General Meeting of Shareholders of DMG MORI AG



2019

February

Announcement of financial results 2018

June

Grand Opening of the new Technology Solution Center in the Netherlands
Annual Meeting of MTTRF
50th anniversary of DMG MORI Switzerland

March

The 71st Annual General Meeting of Shareholders





August

Grand Opening of the new Technology Solution Center in Czech Republic
 Development of an AI-supported search system for past cases
 50th anniversary of Magnescale

September

EMO (Germany)
 Equity participation in TULIP and up2parts

November

Business collaboration with NIKON

October

Presentation of a new production line for XXL-machines at FAMOT Open House (Poland)
 Start of production at a partner company in India



July

Iga Innovation Days
 Relocation and opening of the Global Parts Center
 Release of LASERTEC 12 *SLM* (laser spot size $\phi 35 \mu\text{m}$)
 Release of NLX 6000 I 1000



Mission of DMG MORI's business

DMG MORI has competitive advantages not only in its 5-axis and multi-axis machines, but also its capability to provide automation and Digitization solutions. This will help customers improve their productivity throughout the factory. 5-axis and multi-axis machines make it possible to finish machining in one-chucking and to facilitate process integration. This leads to higher demand for automatic loading/unloading and measurement of workpieces. The automatic operations require monitoring by collected sensing data, and AI helps us analyze big data accumulated from the past. Lessons learned from the data contribute to further improvement of machine tools and peripheral equipment, and ultimately improve the productivity of the entire machining process. This is how a positive cycle is generated.



DMG MORI's Digital Factory



Consulting business
Higher operation
efficiency of
the entire factory

Higher production
efficiency

IoT, monitoring
machine
people, material
tools, fixtures
peripheral
equipment

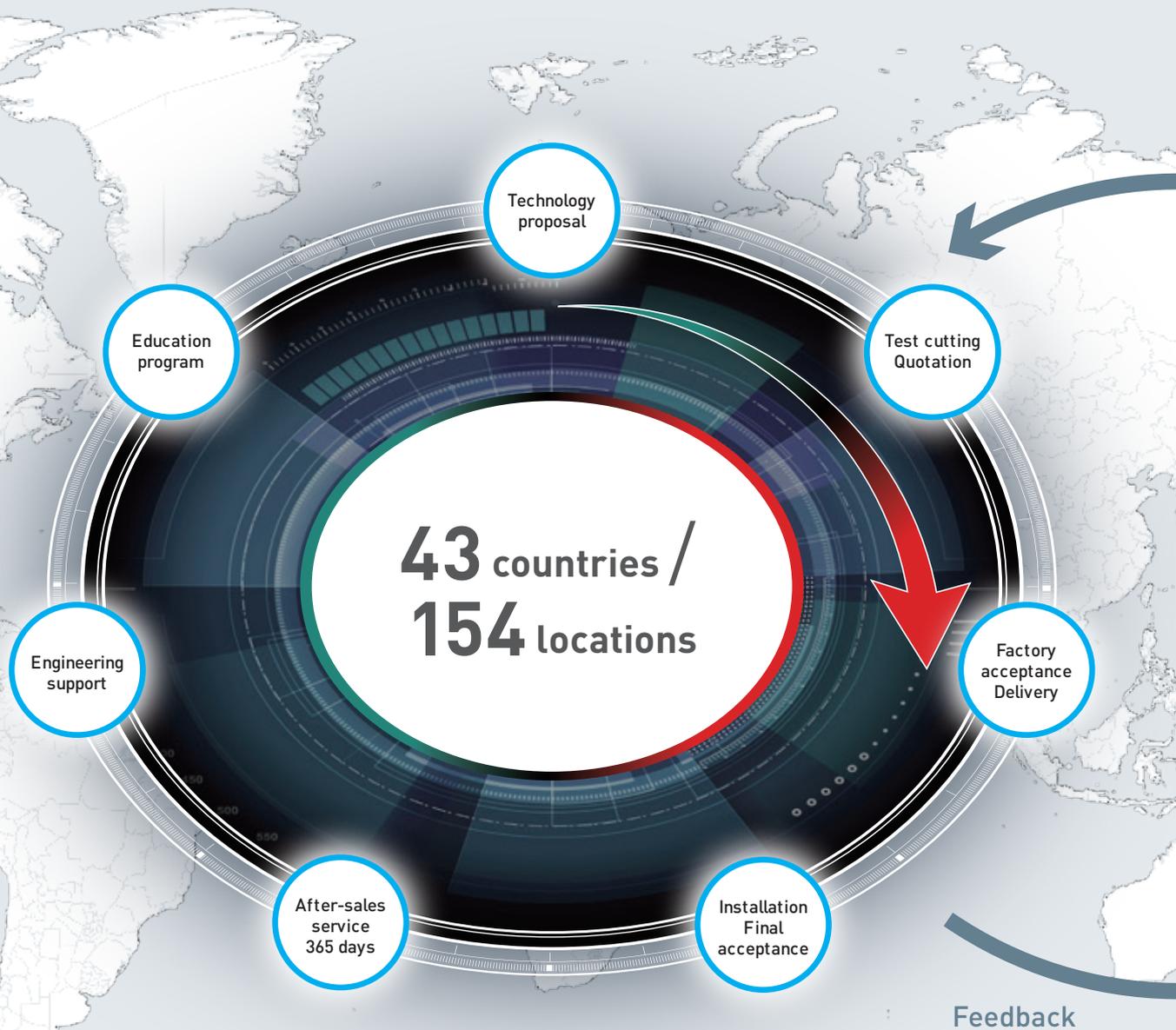
Installation
and
education
business



Competitive advantages of DMG MORI

Directly propose high value-added solutions

With its extensive global direct sales, service, and engineering network of 154 locations in 43 countries, DMG MORI quickly provides comprehensive high-value added solutions to customers.



Direct sales, service, and engineering network of DMG MORI

Sales	About 1,100 employees
Engineering	About 1,100 employees
Service	About 1,600 employees
Parts	About 600 employees
Administration	About 1,100 employees

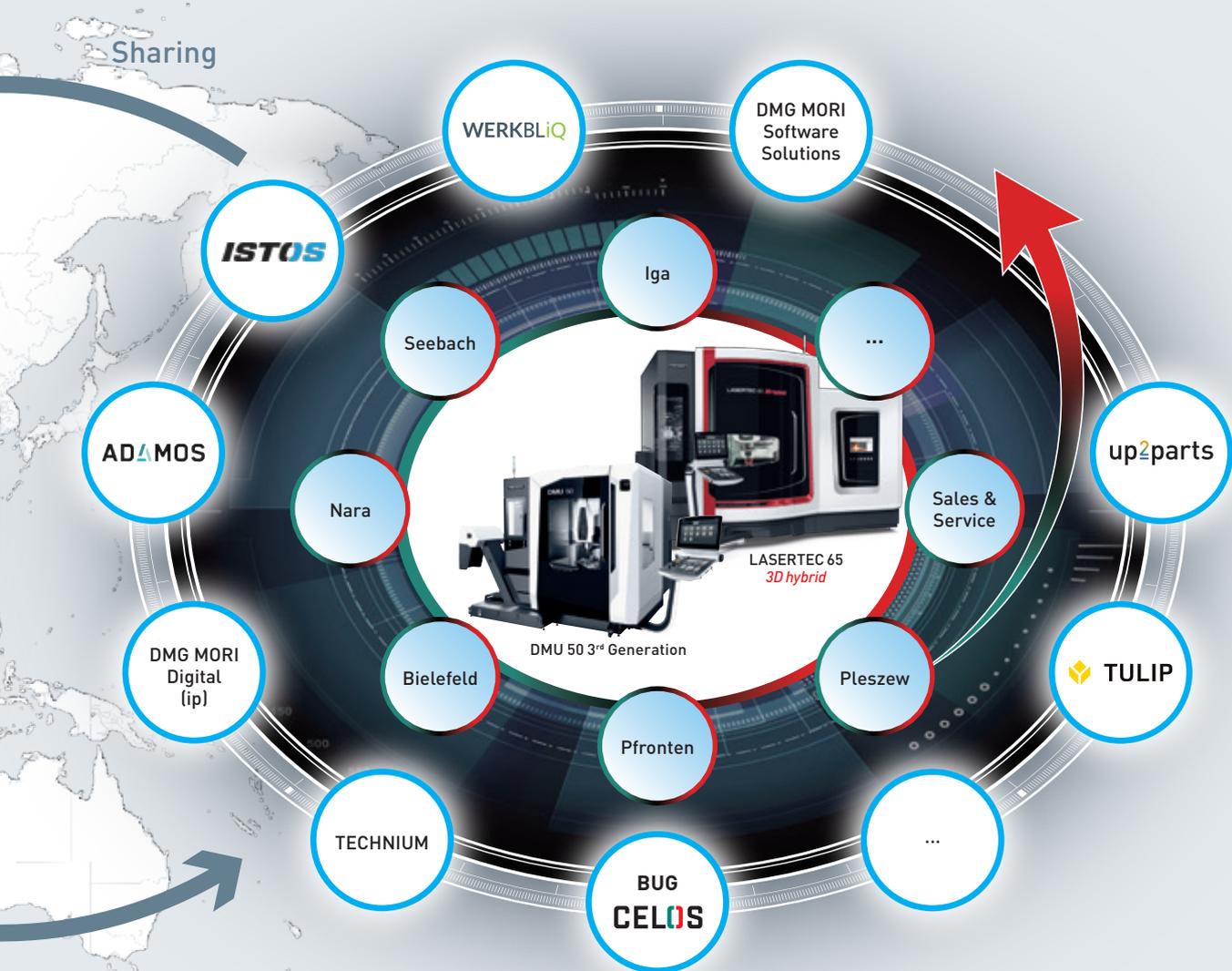
About **5,500** employees

Innovation of machine tool technology in response to changes in our society

Aging population, EV (electric vehicles), AI (artificial intelligence) - DMG MORI continuously responds to changes in our society with advanced technologies.

Building platforms with software and IoT

DMG MORI delivers comprehensive production systems with machines, peripheral equipment, and software to customers worldwide.



Development, production, and software system of DMG MORI

Development	About 1,100 employees
Production	About 3,300 employees
Quality Control	About 1,100 employees
Purchasing	About 1,000 employees
Administration	About 1,000 employees

About **7,500** employees

Total
about **13,000**
employees

DMG MORI's value generation process

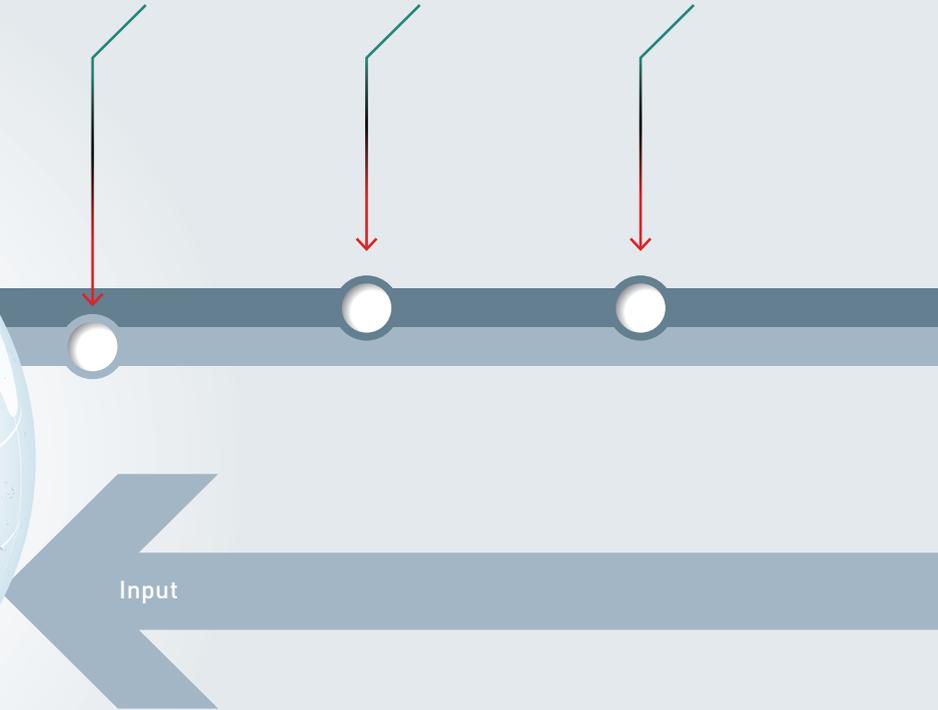
DMG MORI can provide automation systems of high-quality machine tools together with peripheral equipment and software. We are responsible for everything from installation, spare parts supply, and after-sales service through our own resources. This is our competitive advantage.

- Worldwide customer base
- Find and analyze a variety of needs
- Provide solutions for every customer's requirements
- Joint development by Japan and Germany
- PPR (Product Problem Report)
- Digital Innovation Center
- Production optimization
- In-house development and production of key components
- Joint purchasing by Japan and Germany
- TQM activities
- Investment in the latest and advanced production equipment

DMG MORI



Marketing Development Production



GLOBAL ONE

“Our target worldwide the Number 1 for our customers!”

Management resources

Human resources

- Management leadership
- Diverse human resources -about 13,000 employees from 45 countries

Social and networking resources

- Global branding
- Global supply chain network
- Global direct sales network

Intellectual resources

- Accumulated knowhow as a market leader
- Technology excellence in development, production, engineering, and software

Financial resources

- Capacity of cash generation for global M&A projects
- Proactive investment
- Profit generation (sales and operating profits) based on high value-added proposals

Production resources

- 14 production locations in the world
- In-house production and supply of key components



- Aerospace, medical, die & mold, and automotive Excellence Centers
- Extensive machining solutions
- Construction of turnkey systems from own resources

- Three Global Parts Centers
- Optimal spare parts stock
- 24/7 service center
- Long-term warranty service
- Training for machine operators
- High-quality hospitality to visitors

- Sophisticated solutions based on global direct sales network
- Extensive 5-axis machine lineup
- Wide coverage of peripheral equipment (DMQP)

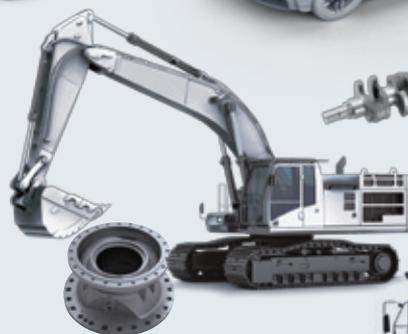


Engineering

Service

Sales

Hardware
Software



DMG MORI's achievements

Products and services

- Global market share: 10% (No.1)
- Global customer base: about 150,000 companies
- Globally installed machines: about 300,000 units

Financial achievements

- Strong in operating cash flows
- Reduced net interest-bearing debt
- Stable dividend payout policy

Social and environmental responsibilities

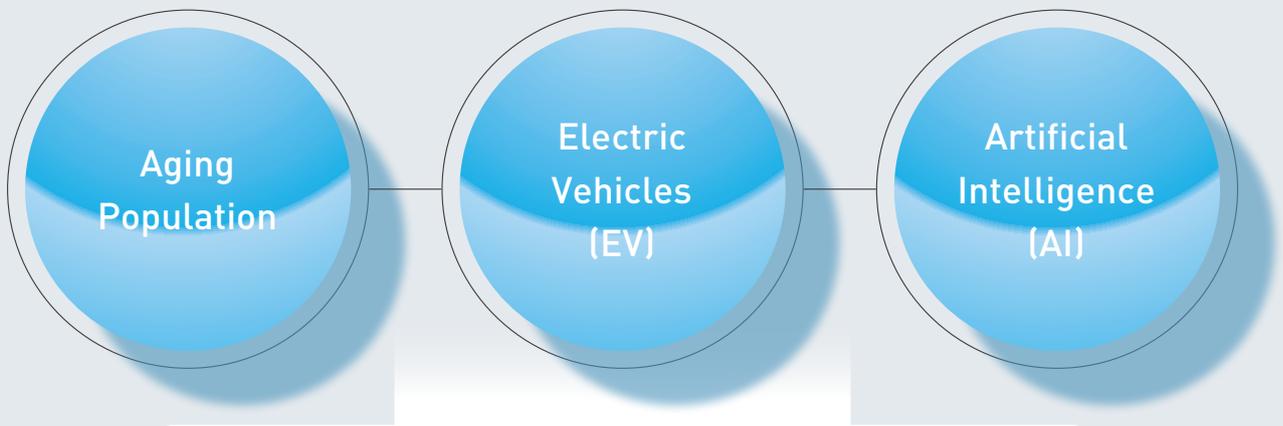
- Promotion of diversification in business resources
- Reduction in emission intensity* of greenhouse gases
- Development of human resources with industry expertise
- Support for research projects

* Emission intensity: emission rate of a given pollutant relative to the intensity of an industrial production process

DMG MORI's solutions to meet social needs

How to meet the changing social needs

Social trends



DMG MORI's solutions



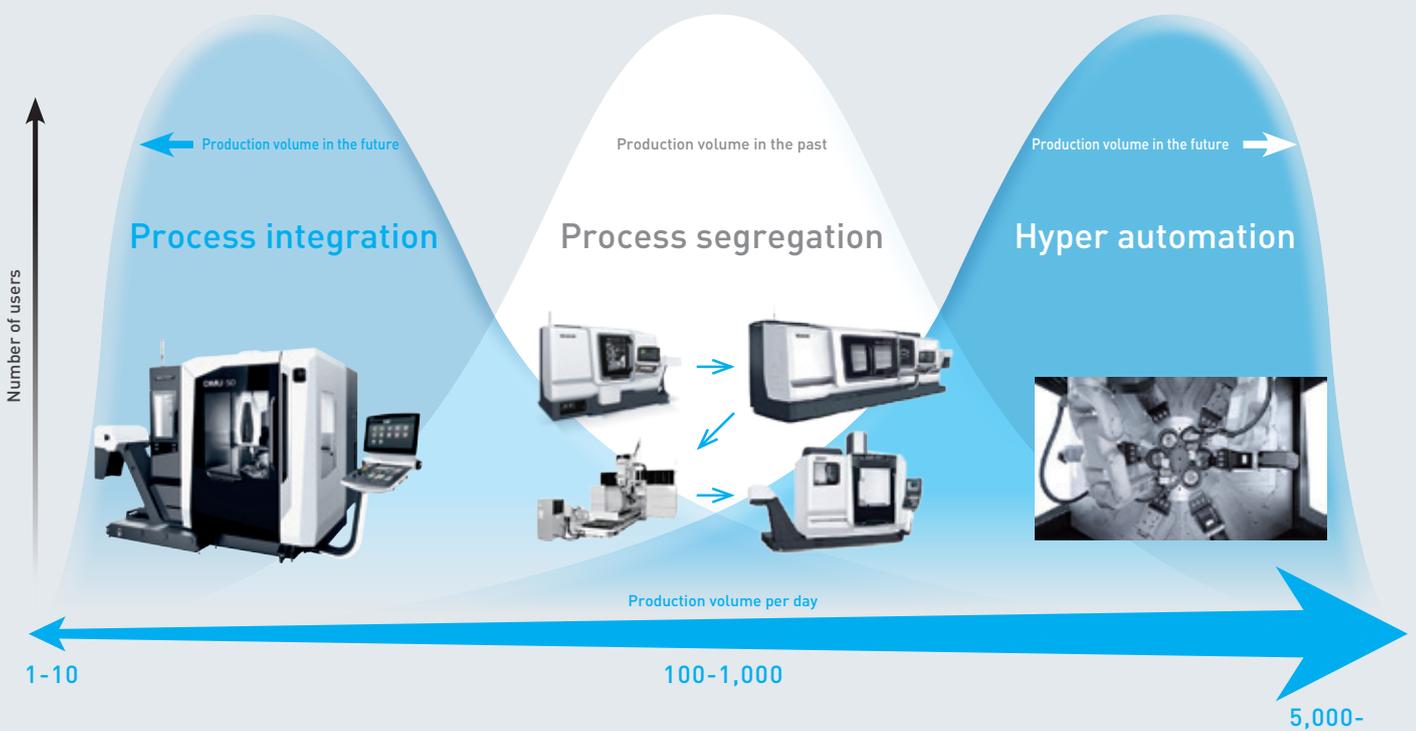
Aging population will change the landscape of production facilities; we have to produce more medical parts to meet growing demand and integrate multiple processes or automate handling processes to compensate for labor shortages.

Electric vehicles (EV) require diverse materials and thus the potential of cutting, ultrasonic machining, and laser machining will expand. Until EVs become more commercialized, hybrid cars boost the demand in machine tools as their small and efficient engines, motors, and batteries require a large number of components.

Artificial Intelligence (AI) processes a huge amount of data, which will increase demand in semiconductors and therefore ultra-precision components of semiconductor production equipment. Machine tools empowered by AI will compensate displacement caused by vibration of core components (e.g. spindles) and thermal behavior. AI will also assist preventive maintenance by learning from sensor data and the relocation history of the machine. Thus, AI will lead to new ways of enhancing customers' productivity.

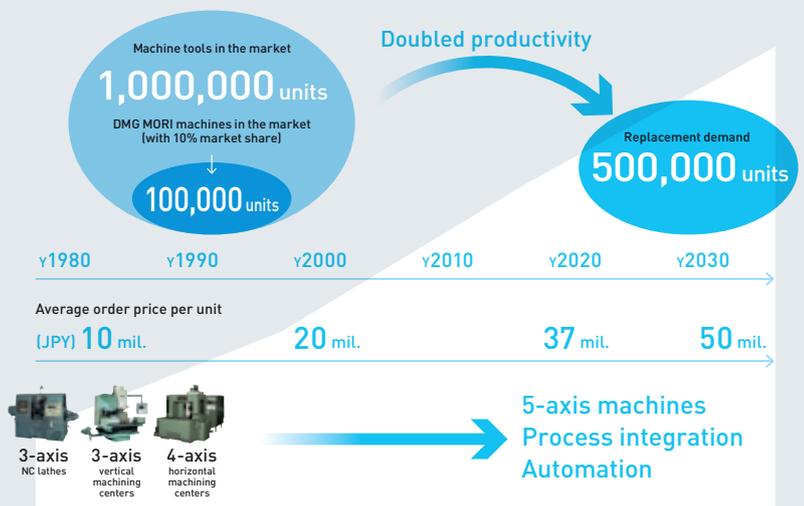
How to meet the changing market needs

DMG MORI's solutions to meet the changing production volume



Potential market size

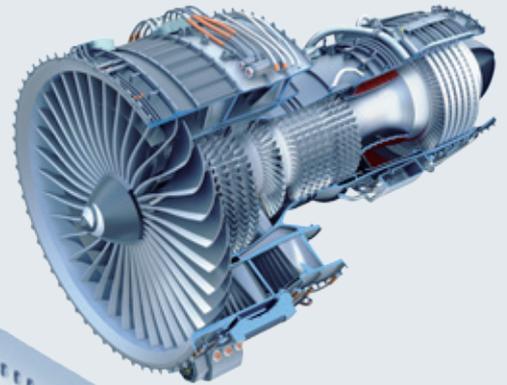
More than one million machine tools over 20 years old are still running worldwide. They will be replaced soon with 5-axis, mill-turn and other high-end machines with better accuracy and efficiency. These new models are likely to boost demand for automation systems, too. Overall there will be less machines requested by customers, but the additional value will push up the order price. We expect the average order price to increase from the current JPY 37 mil. to about 50 mil. by 2030.



Machine tools in our daily life

Machine tools are indispensable for every activity in our daily life - from food, clothing, and shelter, to mobility, communication, and health. For example, machine tools produce plastic bottle molds to form melted material into desired shapes. Similarly, machine tools are involved in the manufacturing process of a wide range of products and equipment such as power generation plants, airplanes, artificial joints, and toys. The advancement of machine tools makes our life more prosperous.

Aerospace



High-pressure compressor housing



Blisk



Compressor disc



Fan disc



Torque link

Machine, robot, social infrastructure



Control valve



Sheet frame



Connector



Construction machinery components



Pump housing



Spool

Automotive, motorcycle, EV



Motor rotor



Cylinder block



Wheel hub



Motor housing



Cam shaft



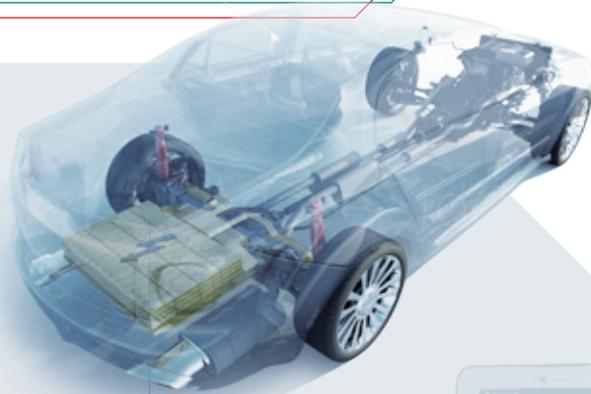
CVJ inner race



Steering knuckle



Radiator grille mold



Energy and resources



Turbine blade



Drill head



Ring



Water turbine

Semiconductor, IoT, sensor



Slide sleeve for optical communication



Magnescale

Die & Mold, Precision components



Mold for hobby articles



Mold for plastic bottle



Mold for railway model



Mold for mobile phone



Mold for training shoes

Medical



Knee joint



Hip joint



Dental prosthesis



Socket



Bone screw



Bone plate



CORE COMPETENCE

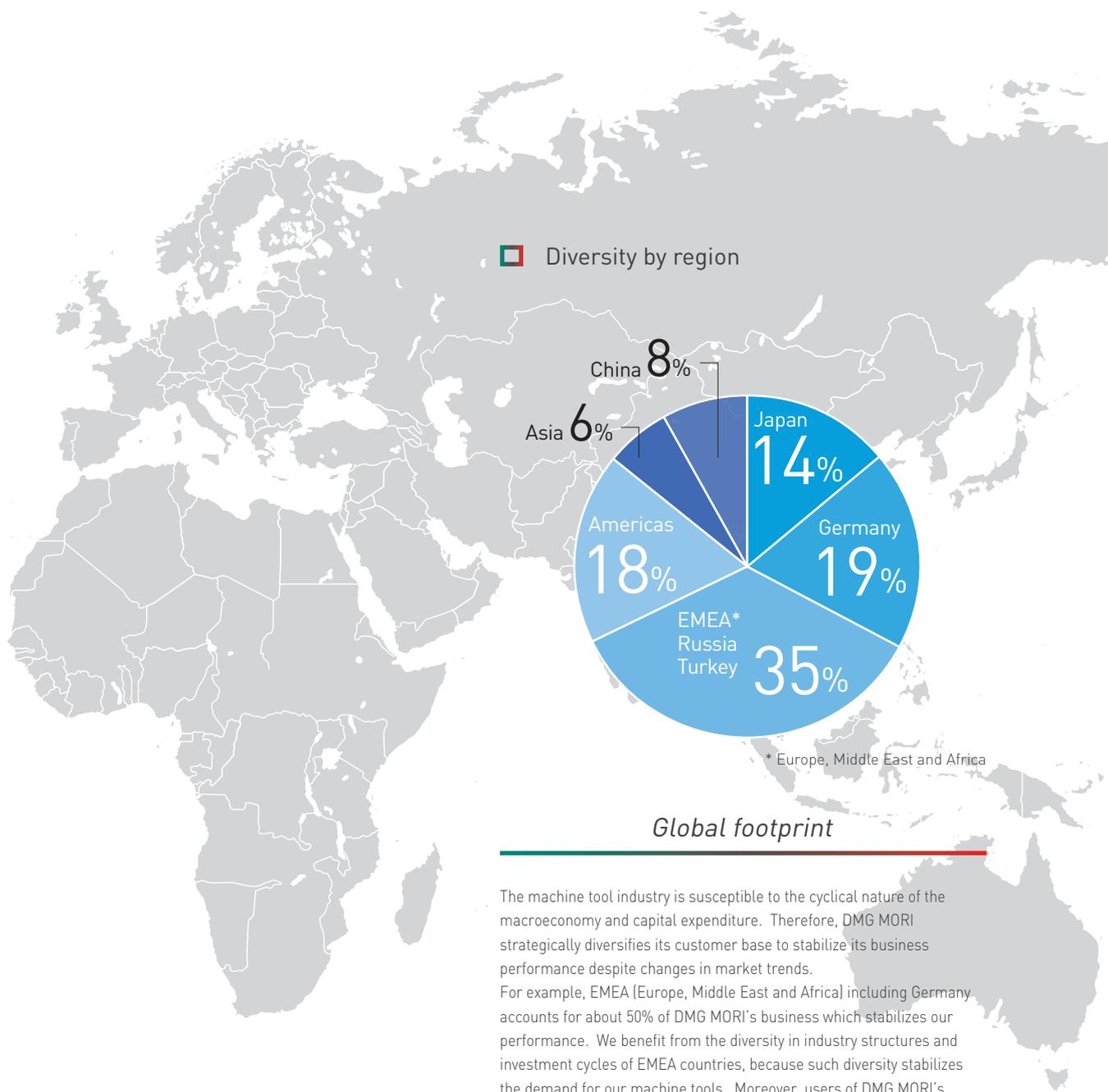
DMG MORI's strength lies in its global direct sales and service network. We provide comprehensive solutions for the entire machining processes. Thanks to this unique business model, DMG MORI can deliver automation systems with high-end, high-quality machine tools, peripheral equipment, and software to customers worldwide. In response to the growing demand for Industry 4.0 / Connected Industries, DMG MORI will provide solutions to connect every machine tool, robot, peripheral equipment such as measurement devices regardless of its manufacturer. In this way, DMG MORI will improve customer satisfaction by efficient production planning, machining optimization, and prompt service and maintenance.



Diversity in business

Diverse customer base

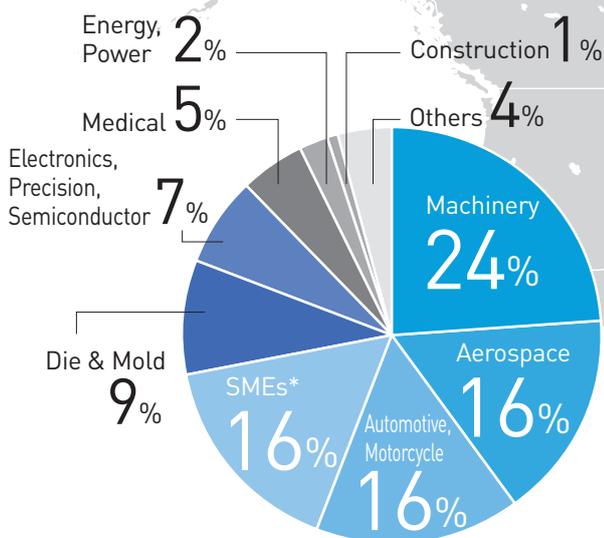
DMG MORI has the highest market share with an estimated 10% in the global market. The competitive advantage of DMG MORI is its solid customer base of about 150,000 companies and about 300,000 machines installed worldwide.



Global footprint

The machine tool industry is susceptible to the cyclical nature of the macroeconomy and capital expenditure. Therefore, DMG MORI strategically diversifies its customer base to stabilize its business performance despite changes in market trends. For example, EMEA (Europe, Middle East and Africa) including Germany accounts for about 50% of DMG MORI's business which stabilizes our performance. We benefit from the diversity in industry structures and investment cycles of EMEA countries, because such diversity stabilizes the demand for our machine tools. Moreover, users of DMG MORI's high-end machines are not limited to advanced economies; our machines help countries such as China and India improve their industrial capacity alongside the development of their economies. DMG MORI's Area Sales Managers are responsible for developing sales strategies for their areas; each area has an equally balanced customer base.

Diversity by industry

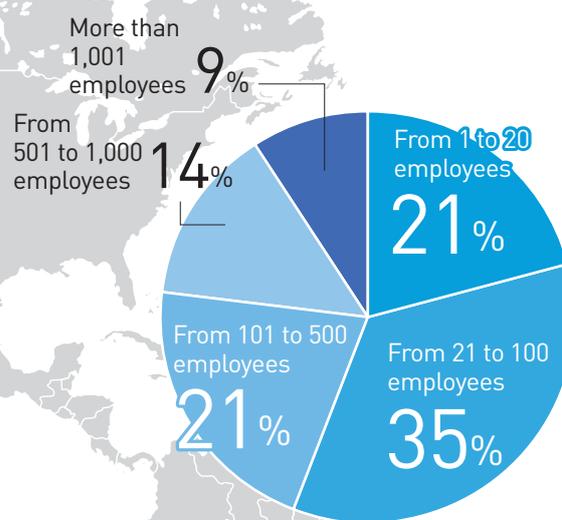


* Small and Medium-sized Enterprises

Balanced customer base

The customer base of DMG MORI is widespread from general machinery, aerospace, automotive, die & mold, semiconductor to medical industries. This well-balanced customer base is another factor for stabilizing demand and order intake. The diversification of order composition reached a milestone in 2019, when the aerospace industry accounted for 16% of total orders, same as the automotive industry. We expect further diversification of customer base together with changes in our society such as aging population, shift to electric vehicles, and increased usage of AI (artificial intelligence). DMG MORI is convinced that our accumulated knowhow in machining technology will serve ever-diversifying requirements from our customers.

Diversity in business size



About 60% are SMEs

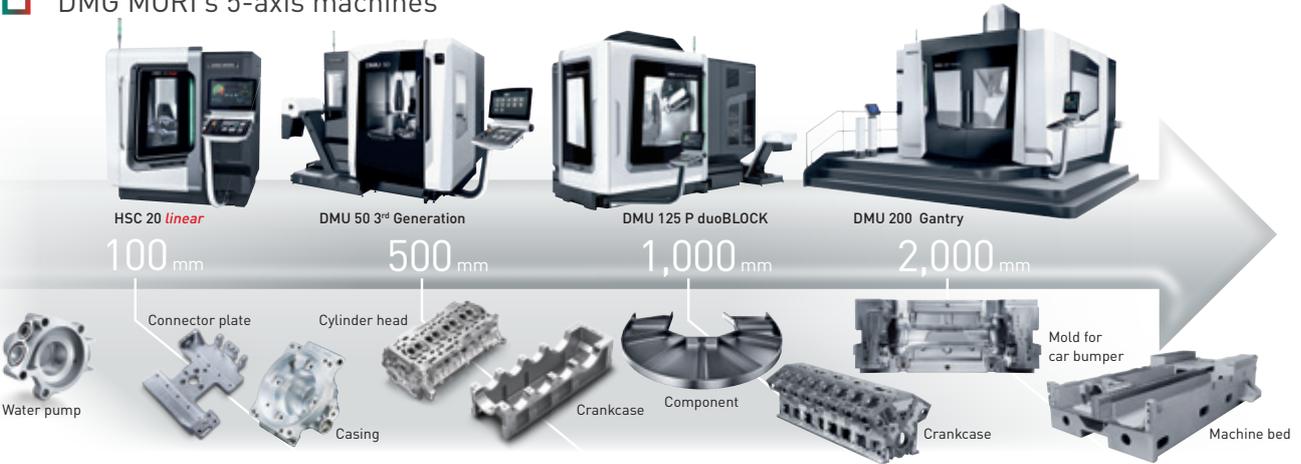
About 60% of DMG MORI's customers are SMEs (Small and Medium-sized Enterprises) with less than 100 employees. SMEs are one of the most important customer groups of the machine tool industry. We continue developing advanced machining technologies and the most sophisticated machine tools including 5-axis, multi-axis, and Additive Manufacturing machines for SMEs. Together with SMEs, we develop new opportunities for the manufacturing industry.

5-axis & multi-axis machines

Global leader

DMG MORI's 5-axis machining centers have outstanding milling performance and operability. With 5-axis machines, the entire machining process is completed by one chucking; this reduces setup and fixtures, and dramatically shortens the machining process. 5-axis machines are ideal for high-speed and high-accuracy machining of complex workpieces by moving the cutting tools towards the workpiece on rotary axes from optimized angles. This would not be possible on 3-axis machines.

DMG MORI's 5-axis machines



About 5-axis machines

5-axis machines have 2 rotary axes in addition to 3 linear axes (X, Y, Z). This allows cutting tools to approach workpieces from optimized angles and apply the best machining strategies in one chucking. Therefore, 5-axis technology is highly efficient for high-mix production.

Simultaneous 5-axis machining



Machine 3D-surface by moving 3 linear and 2 rotary axes simultaneously

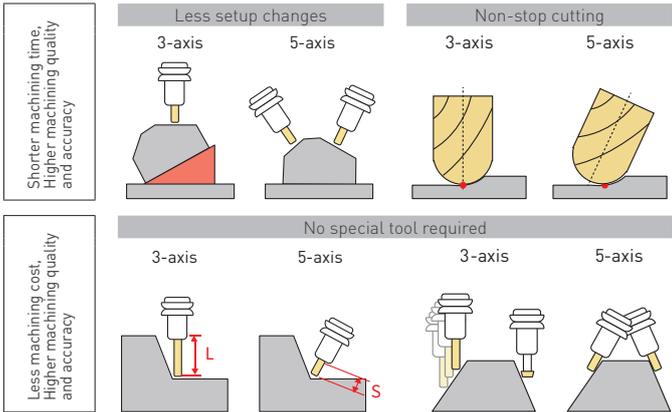
Indexing 5-axis machining



Index 2 rotary axes at desired angles and machine by 3 linear axes

Advantages of 5-axis machining

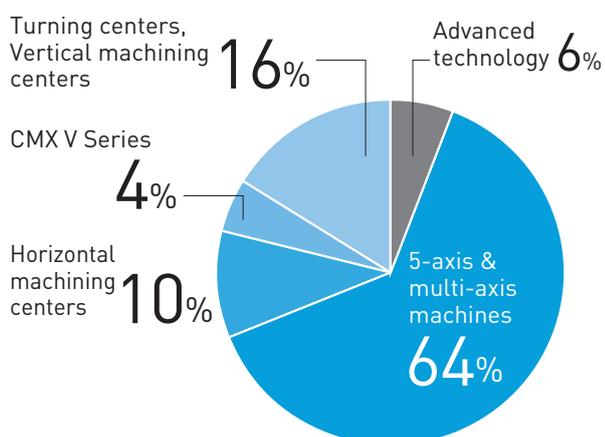
- Machining of complex workpieces
- High-accuracy machining
- Less machining time by process integration
- Less machining cost by reducing fixtures, etc.
- Suitable for automation





Key driver of order intake

Order composition

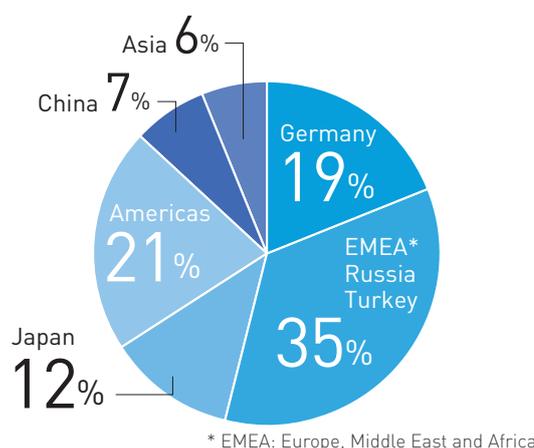


64% of orders for process integration machines

DMG MORI is a market leader in 5-axis machine tools with more than 30 years of experience and accumulated technology, machining knowhow, and extensive product lineup. In 2019, 5-axis machines accounted for 38% of our order intake. 64% of orders were machines for process integration including multi-axis machines. DMG MORI expects even higher demand for process integration machines as well as automation and digitization solutions due to lack of workforce and engineers in the market.

Global market

Orders for 5-axis & multi-axis machines by region



Global demand increase

In aerospace, medical, die & mold, precision machinery, and automotive industries, the shape of components is becoming more complex. The demand for high-accuracy and high-efficient machining by 5-axis & multi-axis machines is especially high in Europe and the United States, where the industry is diversified. The demand for such machines is growing in China, too. Japan and Asia have also started to recognize the advantages of 5-axis technology: one chucking & high-accuracy, less setup changes, no need for special tools and fixtures. We expect a growing demand for 5-axis machines in Japan and Asia as well.

5-axis Research Group

DMG MORI launched the 5-axis Research Group in August 2018 to promote 5-axis technology in Japan. DMG MORI loans out DMU 50 3rd Generation to 70 member companies and gives private lessons at their locations. In June 2019, 63 people from 55 member companies attended "The Second Meeting of the 5-axis Research Group" at Tokyo Global Headquarters. So far, about 2,300 people from all over Japan experienced 5-axis machining first-hand at about 800 private lessons. Knowing 5-axis machines and understanding their benefits will lead to order intake.



Automation

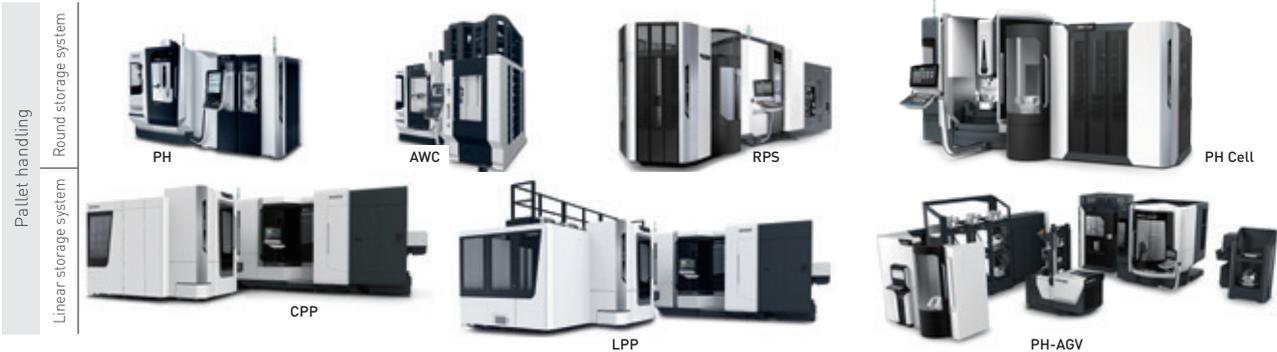
A wide range of automation solutions

We observe a growing demand for automation of production processes by robots and other solutions to compensate for lack of engineers and workforce. Automation is made possible by connecting machine tools, peripheral equipment such as workpiece loading and measurement devices, and a production control system. DMG MORI has a system solution plant dedicated to assembling automation systems as turnkey projects to provide optimized solutions to customers.

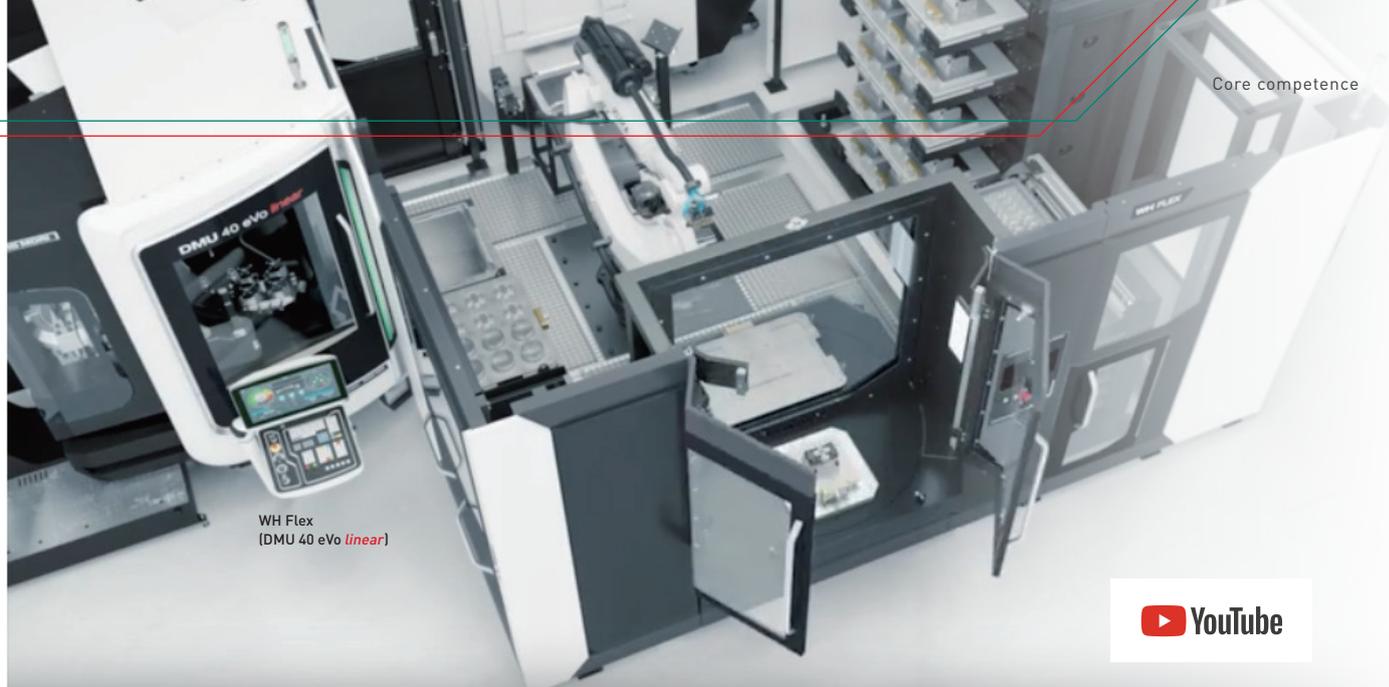
DMG MORI's automation solutions



4 SEGMENTS 12 PRODUCT LINES 52 PRODUCTS



Automatic handling of workpieces by machine tools and peripheral equipment connected with each other - this is one of the key focus areas of DMG MORI's automation solutions consisting of 2 categories: workpiece handling by robot or gantry loader system, and pallet handling by linear or round storage system. DMG MORI offers an extensive product lineup with 52 automation solutions to meet any customer's requirements.



WH Flex
(DMU 40 eVo *linear*)



Advantages of automation solutions

Automation solutions have a lot of advantages: improvement of the machine's productivity and availability by unmanned or night-shift operation; improvement of quality and stability of production by eliminating variances caused by manual operation; improvement of working environment by automating unsafe processes; and reduction of the number of operators.



AGV

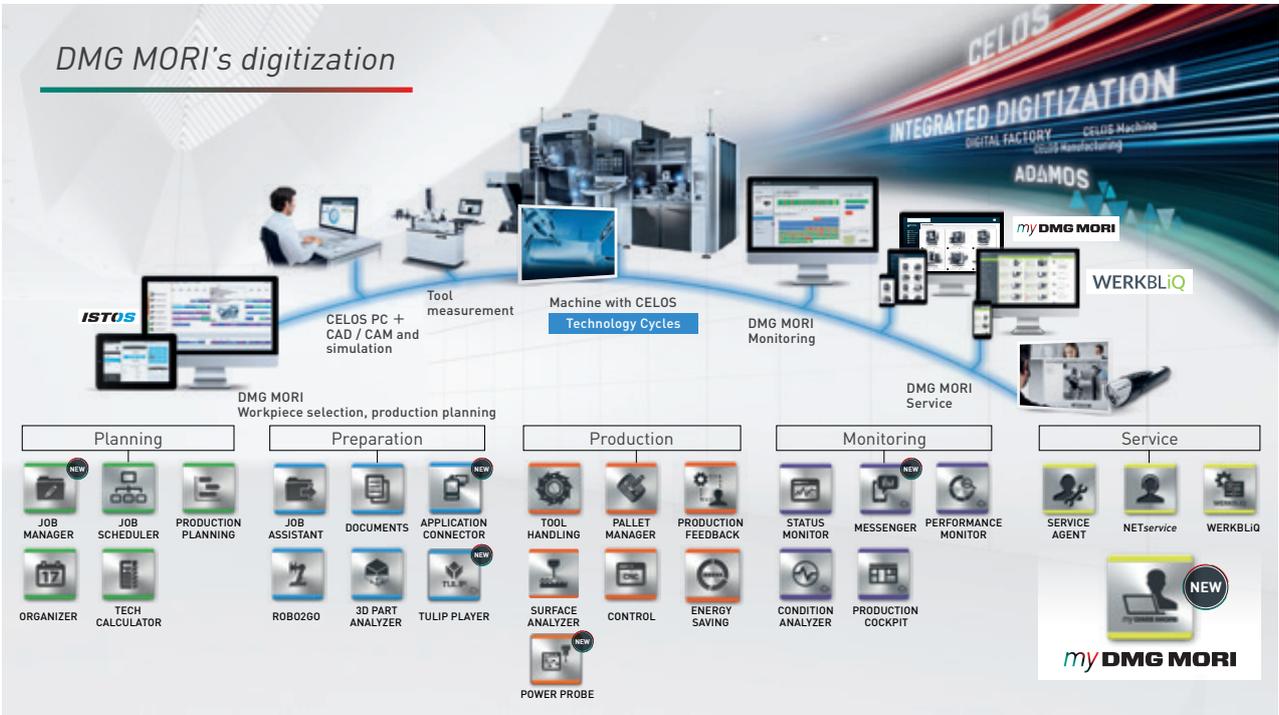
AGV robot is expected to be the next generation automation system for workpiece loading. Currently, DMG MORI is developing WH-AGV that can navigate autonomously by detecting human beings and obstacles on the way to its target. Unlike conventional AGVs, WH-AGV does not require magnetic tapes to guide it through the factory. WH-AGV fits any layout and adapts itself flexibly to layout changes. At the International Robot Exhibition in 2019, DMG MORI demonstrated how WH-AGV 5 navigates autonomously through four access points - machine tool (NTX 1000 2nd Generation), deburring station, air blow station, and tray exchanger.

Digitization

Digital innovation to optimize factory operation

DMG MORI offers the latest technology solutions to help customers build digital factories to dramatically improve productivity and profitability. With DMG MORI's solutions, customers can digitally control the consistent machining process from production planning, preparation, machining, measurement, maintenance to service.

Production optimization by connecting to networks



CELOS is DMG MORI's unique operation system and the foundation of a digital factory. CELOS is a platform to connect machine tools with DMQP (DMG MORI Qualified Products) such as robots and measurement devices. It visualizes the operation status of machine tools all over the world, opens the way for predictive or remote maintenance, and improves machine availability. Since 2019, DMG MORI provides DMG MORI Connectivity as standard to connect DMG MORI's with other manufacturers' machine tools. In the same year, DMG MORI launched its customer portal site "my DMG MORI".

MESSENGER

MESSENGER

MESSENGER is a real-time monitoring tool of operation status of machine tools with network connection. MESSENGER is also useful for collecting or analyzing information and making reports.

ISTOS

ISTOS

Production planning and control are the first steps of the machining process at customer site. ISTOS makes these steps quick and efficient and optimizes customer's production. This convenient solution is compatible with other applications.

WERKBLiQ

WERKBLiQ

WERKBLiQ is a software for maintenance and service of machine tools and peripheral equipment. WERKBLiQ improves machine availability by preventive maintenance. Maintenance jobs such as creating service orders, documentation, and spare parts orders become easy and efficient by WERKBLiQ.

TULIP

TULIP

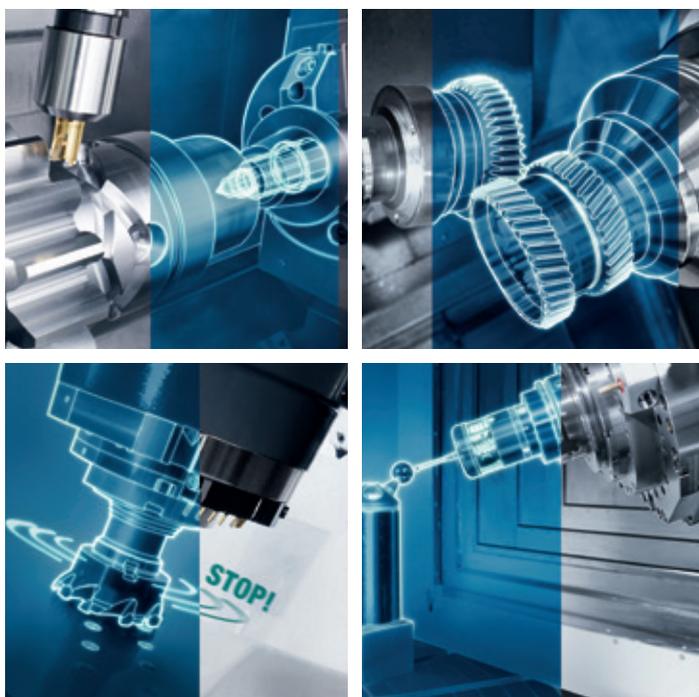
TULIP provides a platform for creating applications without programming knowledge. This improves production processes and makes them more efficient.



Technology Cycles



43 Technology Cycles



Technology Cycles are solutions to perform complex machining easily and quickly. They integrate machine tools such as 5-axis and multi-axis machines, peripheral equipment such as robots, cutting tools and measurement devices, as well as HMI (Human Machine Interface) such as CELOS by embedded software. Technology Cycles replace machines, programs and tools designed for special purposes by standard machines, tools and fixtures. Anyone can set up, machine, and measure easily, quickly, and with high quality. Currently, DMG MORI offers 43 Technology Cycles in 4 categories: Handling, Cutting, Measuring, and Monitoring.

Advanced technology

Flexible processing of a variety of materials

DMG MORI has a wide range of products in the field of Advanced Technology: Additive Manufacturing to create desired shapes by deposition of metal powder, laser, and ultrasonic processing.

■ Cutting-edge Additive Manufacturing

Create complex shapes with lower material cost and light weight



Additive Manufacturing with powder nozzle and powder bed from a single source

Additive Manufacturing is a technology to create desired shapes based on 3D models by melting metal powder by laser and depositing it layer-by-layer. Additive Manufacturing can build complex structures that cutting tools cannot handle. This technology is ideal for producing components with special materials for aerospace, medical, and die & mold industries. Hollow-core structures built by Additive Manufacturing save workpiece weight and material cost. DMG MORI is the first machine tool company offering both powder bed and powder nozzle technologies from a single source. In powder bed machines, the laser melts the spread out metal powder and build components layer by layer. In powder nozzle machines, metal powder supplied from the nozzle is immediately melted by laser and deposited.



Double-pipe heat exchanger (Energy)
φ 200 × 250 mm

Launching new products by technology innovation

In 2019, DMG MORI enhanced its product lineup of Additive Manufacturing. LASERTEC 12 *SLM* is a new powder bed machine for high-accuracy metal deposition with integrated linear scale of less than 1 μm positioning accuracy. LASERTEC 125 *3D hybrid* is a new powder nozzle machine with max. workpiece weight of 2,000 kg. rePLUG is a new cartridge type powder module system that reduces time for exchanging powder material. OPTOMET is a new software to calculate optimized parameters by inputting constituent elements and grain size distribution of alloy powder.



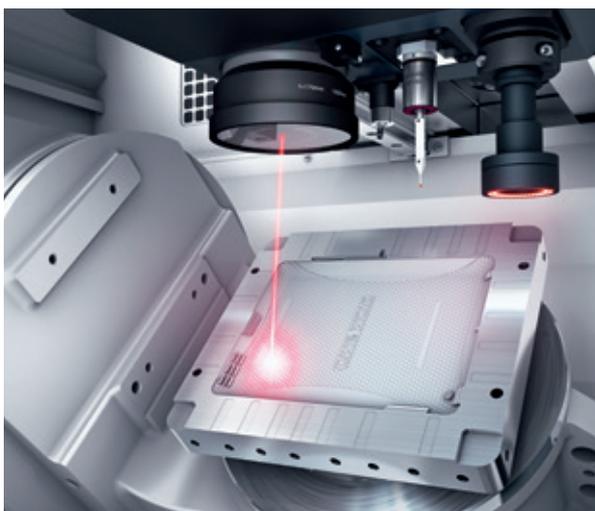
LASERTEC 12 *SLM*



Impeller (Automotive)
φ 45 × 27 mm

- Non-contact laser processing with broad possibilities

Process advanced materials



Laser processing includes laser cutting, engraving, and marking of workpieces by laser beam. This technology requires no physical contact between workpiece and cutting tool.

DMG MORI's LASERTEC Series allows customers to select the laser source from YAG, fiber, femtosecond, etc. with different characteristics. 3D laser ablation is used for finishing operation of geometrical surface texturing of injection molds and press dies. Other applications include processing of complex pockets, precision die milling, marking, and lettering. 5-axis laser precision cutting is used for producing precision components, and 5-axis laser drilling for cooling holes of gas turbine components. Laser processing is an alternative method that goes beyond the capabilities of diamond cutting. Also, laser is a green technology, as it does not consume any consumable material.



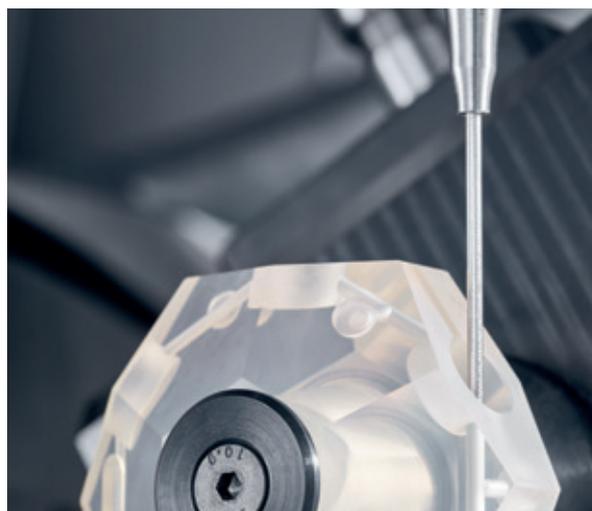
LASERTEC 75 Shape



Mold of tablet PC cover
290 × 220 × 65 mm

- Process difficult-to-cut materials by ultrasonic

Reduction of cutting resistance by up to 40%



Ultrasonic technology is ideal for processing advanced materials such as ceramics, glass, corundum, tungsten carbide, cemented carbide, and fiber reinforced material. These materials are difficult to process, but ultrasonic can create complex shapes efficiently. Recently, we have been observing a growing demand for ultrasonic technology in the semiconductor industry. DMG MORI's machines exert ultrasonic vibration in Z-axis direction by rotating tools. This reduces cutting resistance by up to 40%, and leads to outstanding surface quality, accuracy, and long tool life. In its ULTRASONIC Series, DMG MORI offers an extensive range of products such a compact model with only 3.5 m² footprint for medical / dental applications.



ULTRASONIC 20 *linear*



Gyroscope
60 × 60 × 30 mm



Headquarters as foundations for sustainable growth

Competitive advantages as a global company

DMG MORI has a global and diverse customer base of different regions, industries, and sizes. Our global production locations and direct sales & service networks enable us to provide sophisticated solutions tailor made for every customer's requirements from single source and one stop. DMG MORI has established direct sales & service systems outside of the Japanese market.

As a result, we can provide quick and informative responses without involving distributors in between. DMG MORI will achieve quality improvement and shorter delivery time by strict control, human resources development, and optimization of supply chain networks. We will continue creating value to satisfy customers worldwide.

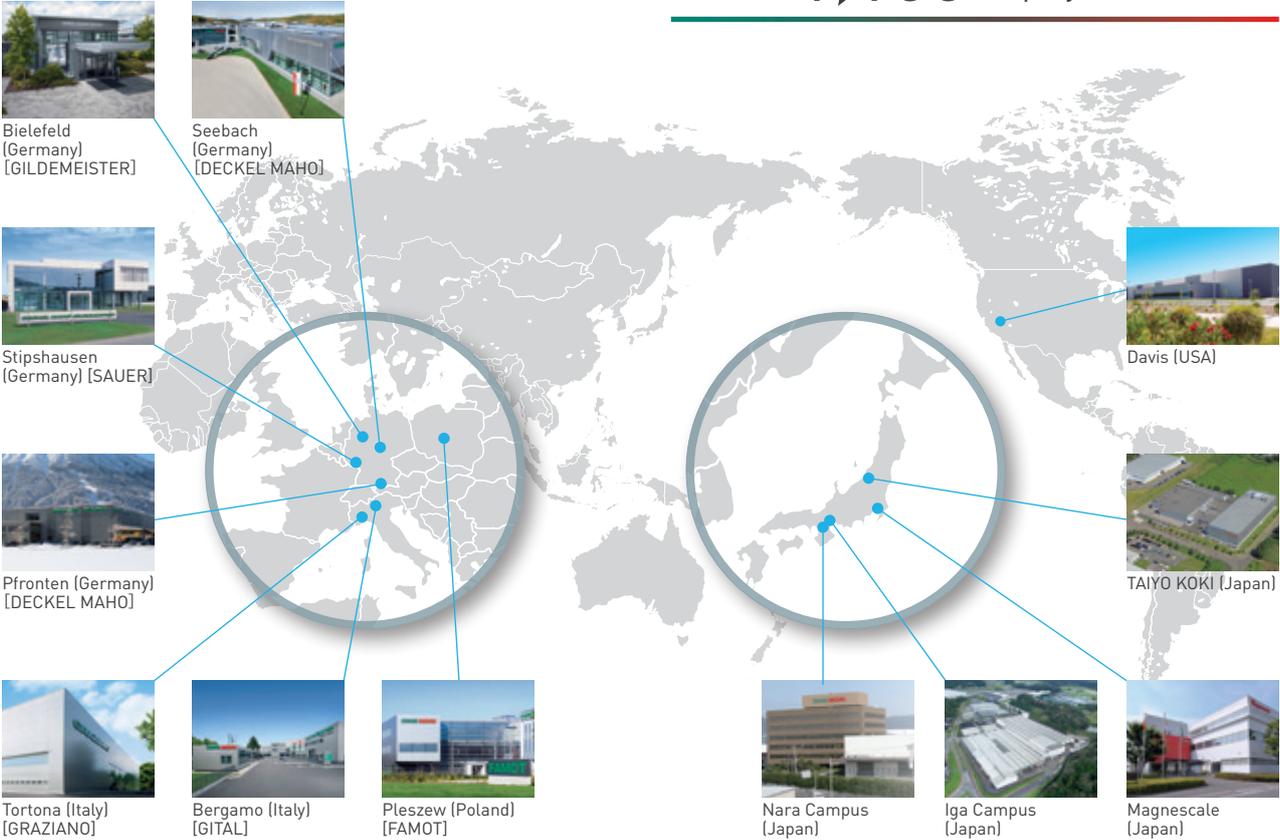
R&D Headquarters

Integrating technologies from Japan and Germany

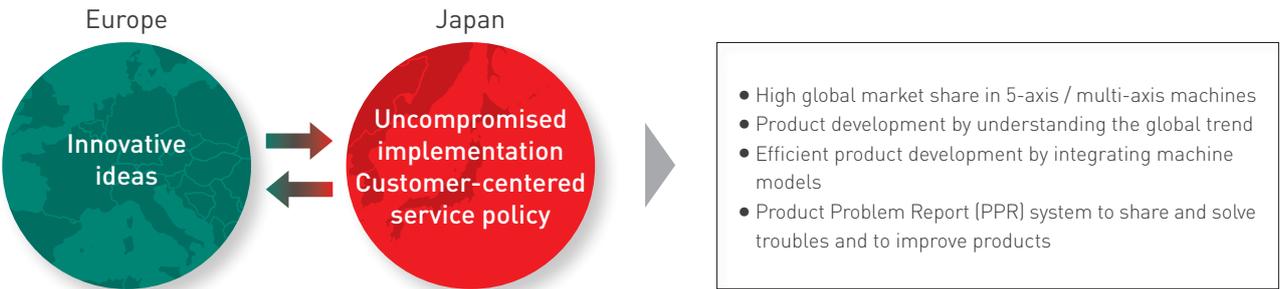
DMG MORI develops cutting-edge products to meet requirements from worldwide customers by efficiently uniting the strengths of designers from both the Japanese and the German side of the group. The product development process includes four gateways to scrutinize the quality of new products based on feedback received for 300,000 installed machines.

Global R&D bases

About **1,100** employees in R&D



Uniting the strengths of Japan and Europe



Global Development Summit



About 1,100 employees are working at R&D bases in Japan, Germany, the United States, Italy, and Poland. At the annual Global Development Summit (GDS), key development engineers get together to discuss face-to-face on new technology development. Following a plenary session to share the future development schedules, the participants exchanged ideas about new technology development, integration of machine models, and usage of common components in small groups. The 6th GDS took place in Bielefeld, Germany in September 2019 with about 260 participants. The key focus areas at this meeting included automation and digital twin.

Outline of the 6th GDS	
Number of times held	The 6th Global Development Summit
Location	Bielefeld (Germany)
Participants	About 260 (15 working groups)
Achievements	<ul style="list-style-type: none"> ● Integration of machine models and usage of common components ● Digital twin ● CAM / digital programming ● Automation ● Peripheral equipment (DMQP)

Product development process



DMG MORI's product development process begins with design specifications followed by conceptual design, detail design, release of drawings, prototype, performance evaluation, and concludes with mass production. All the products have to successfully go through the four gateways before being launched to the market; Structure Design Review (SDR) to assess the marketability; Pre-production Design Review (PDR) to check the validity of design, assembly, and machining; Cost Design Review (CDR) to review material costs; and Mass-production Design Review (MDR) to confirm preparedness for upcoming market launch including machine catalogues and service training.

R&D Headquarters



5-axis & multi-axis machines

5-axis and multi-axis machines achieve higher accuracy by machining the workpiece in one chucking; they also shorten production lead time by integrating multiple processes. Furthermore, their introduction helps overcome labor shortage such as lack of engineers. As a result, applications in the fields of aerospace, medical, die & mold, industrial machinery and others are increasing. Shifting to multi-axis means to also promote the introduction of automation. Automation requires the collection and analysis of data, which can then be feedbacked to improve the productivity of machining processes. Multi-axis lays the foundation for future digitization.



DMC 65 monoBLOCK

Automation

Automation enables long-time unmanned operation. We can respond to the increasing demand for workpiece handling and pallet handling by already offering 52 types of standardized automation systems. Currently, automation systems make over 20% of our order intake, but we expect the share to grow to approx. 80% by 2030. Therefore, we are strengthening our efforts in the fields of engineering, peripheral equipment and software development.



PH Cell +DMU 65 monoBLOCK

Digitization

DMG MORI offers software for digital management of all machining processes: Messenger and software by ISTOS for scheduling and machining preparation, our self-developed Technology Cycles for machining, and software by TECHNIUM and WERKBLiQ for maintenance.



Additive Manufacturing, laser processing and ultrasonic processing are referred to as Advanced Technologies. They are applied in fields not suited for conventional cutting, such as machining of complex shapes and new material. Their usage is expected to drastically grow in the future.

Only DMG MORI can answer the diverse needs of our customers offering both powder bed and powder nozzle solutions from a single source. Peripheral equipment and software such as OPTOMET complete our solutions and make them even easier to operate. In February 2020, we revealed our newest product at Pfronten Open House in Germany: LASERTEC 30 DUAL *SLM*, a machine with 2 lasers for 1.8 times higher productivity.

Advanced Technologies



R&D Headquarters

Technological Innovation



PH-AGV 50

WH-AGV 5

The benefits of automation

1) Higher productivity

Automating production processes enables unmanned production, also during night time. Even partial automation of production processes raises productivity by reducing the number of workers needed to only one. That means the hourly production volume will increase.

2) Improved quality, productivity, and stability

Mounting workpieces appears to be simple, but manual work easily causes errors. Also, quality and productivity are often dependent on the skill of the operator. However, automating production processes leads to more stable production.

3) Better working environment

Hard work, such as moving heavy workpieces by hand cart and manually mounting them, as well as dangerous work, such as crane operation, are common at production sites. Automating these processes results in a better working environment where workers experience less physical burden and danger.

4) Higher flexibility

Not only low-mix / high-volume production, but also high-mix / low-volume production can be automated. A pallet pool system allows the workpiece to be moved together with the fixture on the same pallet. It is possible to program different ways of workpiece transfer and machining, and even to continuously machine different types of workpieces with different fixtures in one system.

AI-based cutting chips solution

We developed a technology that analyzes camera images by AI to identify where and how much chips are accumulated, and automatically adjusts the spraying angle of coolant. This AI-based automatic washing solution improves machining accuracy, while reducing the work of operators, previously responsible for frequent cleaning of the cutting area. This technology makes long-time unmanned operation possible.



Provision of measurement and camera technology

Technological cooperation



Business alliance with NIKON CORPORATION

In November 2019, DMG MORI and NIKON CORPORATION concluded a memorandum of understanding for comprehensive business alliance. In recent years, machine tool users have been increasingly utilizing high-accuracy machines, automation and digitization to realize high-mix / low-volume production at their factories. This trend is accompanied by a growing demand for non-contact measurement technology due to advancement in integration of mechanical machining and measurement. This business collaboration opens a way to apply measurement and camera technologies of NIKON - a global player in manufacturing optical instruments - on DMG MORI's machine tools to jointly develop more sophisticated products. Together, we will offer innovative solutions by combining our resources to generate synergy effects and develop products with new levels of precision and potential to accelerate digitization.

President's message



Makoto Fujishima
Executive Director, Dr. Eng.

With the integration of machine models and important units between Japan and Germany almost finished, DMG MORI is united in the endeavor of proactively advancing development. The focus lies on multi-axis and automation as our way of contributing to solving the shortage of skilled machine operators and staying competitive in high-cost countries. We are developing functions that free operators from hard physical work by automating the mounting and dismounting of workpieces, and make room to invest their time into higher level of tasks. To achieve this goal, we automate workpiece handling by robots, loaders, pallet exchange systems, AGV and others. We also develop solutions to support long-time automated operation by replacing manual processes commonly handled by operators - cleaning of chips inside the machine, tool maintenance and exchange, accuracy measurement

- by machine's functions. Especially, the removal of chips, coolant and mist causes big challenges. Therefore, we established development departments specialized in solving these issues of our customers. We are also developing machines ready for automation, and advancing process integration by performing several types of machining and measurement on a single machine to reduce the frequency of workpiece exchange. Furthermore, we support PDCA-based improvement at customer's site by automating and connecting machines for monitoring and data collection. Over the course of one year since the establishment of R&D Headquarters in 2019, we have been advancing 30 new projects. After turning them into specific products in 2020, they will assist our customers in integrating processes and automating their factory.

Production Headquarters

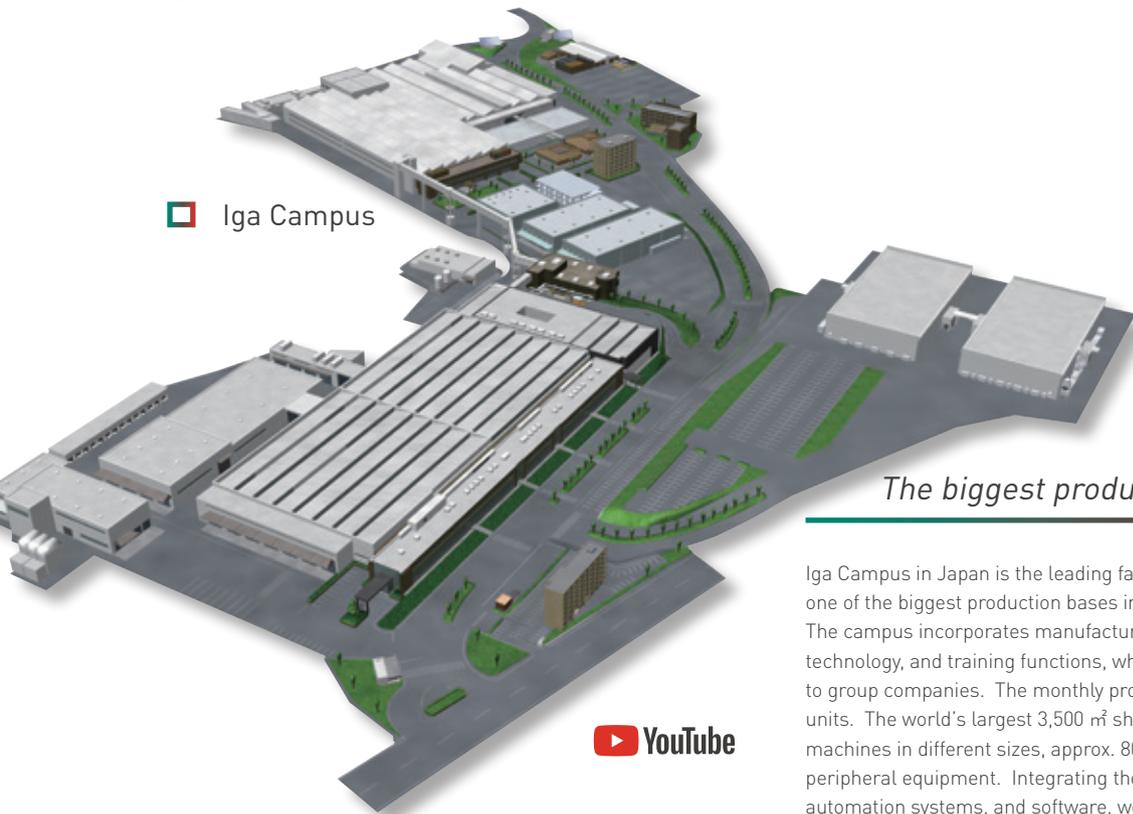
In pursuit of global optimization

DMG MORI has production bases worldwide, including the biggest one in Iga (Japan) and in Pfronten (Germany). It allows us to produce machines closer to the end users, optimize transportation, secure short delivery time, and meet the diverse local needs.

- 1 Pfronten (Germany) [DECKEL MAHO]
- 2 Seebach (Germany) [DECKEL MAHO]
- 3 Bielefeld (Germany) [GILDEMEISTER]
- 4 Stipshausen (Germany) [SAUER]
- 5 Bergamo (Italy) [GITAL]
- 6 Tortona (Italy) [GRAZIANO]
- 7 Ulyanovsk (Russia)
- 8 Pleszew (Poland) [FAMOT]
- 9 Tianjin (China)
- 10 Nara Campus (Japan)
- 11 Iga Campus (Japan)
- 12 TAIYO KOKI (Japan)
- 13 Magnescale (Japan)
- 14 Davis (USA)
- Lakshmi Machine Works Limited (India) [Partner]



 Iga Campus



The biggest production base in Iga

Iga Campus in Japan is the leading factory of the DMG MORI group and one of the biggest production bases in the global machine tool industry. The campus incorporates manufacturing, R&D, service, production technology, and training functions, while also supplying key components to group companies. The monthly production capacity is as high as 250 units. The world's largest 3,500 m² showroom continuously displays 70 machines in different sizes, approx. 800 workpiece samples, and various peripheral equipment. Integrating them with latest machining methods, automation systems, and software, we offer total solutions for any customer. In July 2019, we established Iga Global Parts Center with automatic cutting-edge equipment as a hub for service and spare parts.





7 countries

14 bases

1 production partner

Major overseas bases



Pfronten (Germany)



FAMOT (Poland)



Lakshmi Machine Works Limited (India)

7 countries, 14 bases, 1 production partner

DMG MORI has 14 production bases in Japan, Germany, the United States, Italy, Poland, China, and Russia, and one production partner in India. The production facilities worldwide allow us flexible movement in the recent trends towards protectionism. Each production base is responsible for defined machine types and accordingly optimizes the supply chain and enhances production efficiency to meet committed delivery times. For example, Pfronten factory in Germany, one of the most important bases in Europe, focuses on middle and large-sized 5-axis machines, whereas FAMOT in Poland installed the biggest automated XXL production line in November 2019 and represents a cutting-edge, digitalized factory.

Production Headquarters

5-axis machines in pursuit of productivity

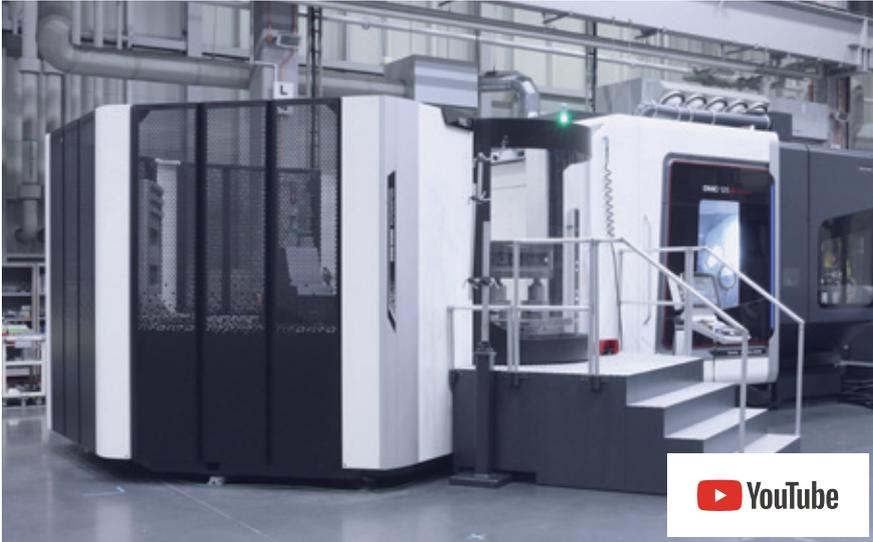
With newly-installed DMC 340 FD and DMC 125 FD duoBLOCK Grinding μ Precision from AG, we have succeeded in significantly enhancing productivity and machining accuracy. The productive and space-saving machines also create a safer production environment.

Higher productivity by process integration - Iga Campus



DMC 340 FD

The DMC 340 FD, an XXL machine with a maximum cutting diameter of \varnothing 3,400 mm and a turning table of \varnothing 2,500 mm, machines beds, columns, and other large components with high efficiency and accuracy at our site. The machine roughly doubles productivity and machining accuracy, while creating a safe environment for operators. The high productivity saves space by reducing the number of machines, too.



DMC 125 FD duoBLOCK Grinding μ Precision

DMC 125 FD duoBLOCK Grinding μ Precision is an ultra-precision 5-axis / multi-axis machine with volumetric accuracy of $15 \mu\text{m}$ or less. The machine performs post-hardening milling of Y-axis bases and saddles as well as grinding by one chucking. The efficient and accurate machine shortens lead time. With the in-machine measurement technology and pallet pool system with seven pallets, it reduces setup frequency and enables unmanned operation at night and on the weekends.

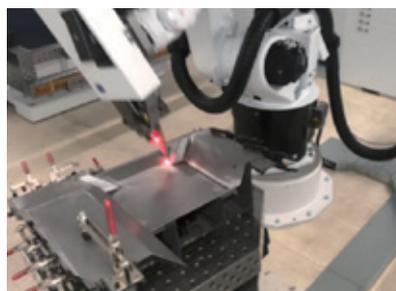
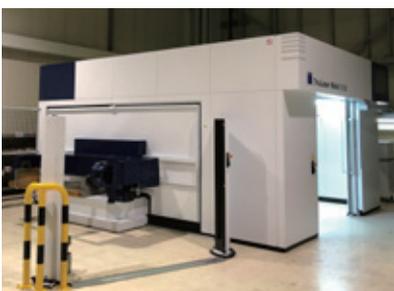


Production Headquarters

Stronger supply chain

DMG MORI has established a global supply chain to support factories in Japan, Europe, the United States, and China. We have developed cordial relationships with suppliers over years, while key components are sourced internally.

DMG MORI FABTECH CO., LTD.



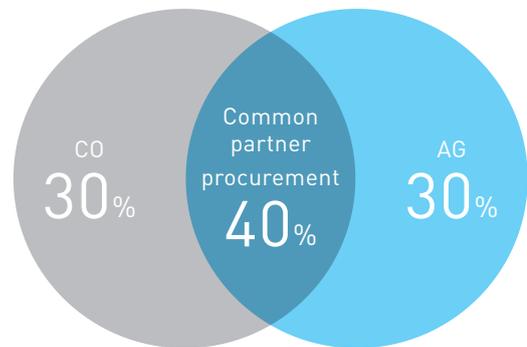
To further reinforce our in-house production capacity and supply chain, we separated Sheetmetal Production Department from the main body and founded a new company, DMG MORI FABTECH CO., LTD. A newly-installed robot laser welding systems by German manufacturer TRUMPF fully automated the welding process, shortening lead time by 80% from 100 minutes to 20 minutes.

Production Headquarters

Key components



Procurement



* Based on value

In-house production of main components

DMG MORI has promoted in-house production in pursuit of better quality, shorter delivery time, as well as shorter development time. We have produced ball screws, ATCs and spindles, where all processes from parts machining, assembly to testing come together. Our in-house production strategy reaches beyond Japan, as we manufacture components in our own facilities all around the world, such as spindles in Pfronten (Germany), casting parts in FAMOT (Poland), and sheet metal in Davis (USA).



160 shared suppliers

DMG MORI is reinforcing the global supply chain to stabilize production processes in Japan, Europe, the United States and China. About 40% of goods are delivered from 160 shared suppliers of DMG MORI CO and AG. Usage of common parts at the same prices based on joint evaluation standards and the resulting higher purchasing volume contributed to stronger relationships with suppliers.

MASTER Series spindles

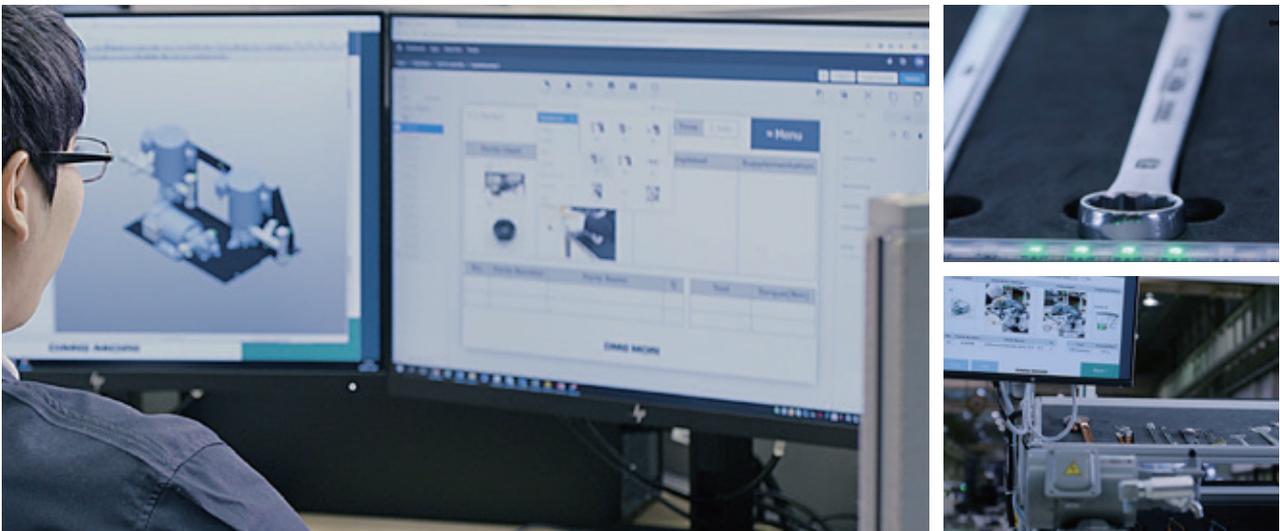
As a key component of machine tools, a spindle unit demands high accuracy in machining and assembly. To further enhance customer's satisfactions, DMG MORI developed high-quality and reliable spindles and offers comprehensive services from repair to rebuild. The Spindle Plant in Iga Campus carries out parts machining, assembly and inspection under a strict quality control standard. 3-year warranty is available for MASTER Series spindles.

Production Headquarters

Promotion of factory digitization

DMG MORI turns its customer's production facilities into digital factories and maximizes the productivity with our cutting-edge technology. We can offer optimized applications to digitize production and upgrade customer's machining processes.

■ TULIP: Optimized application for digitization



We made a capital participation in TULIP, a Boston-based venture and a developer of production control software. With its software, we can digitize and update production processes in SMEs (Small and Medium-sized Enterprises). The application creates an intuitive and user-friendly platform, which allows customers to optimize production processes without specialized programming skills. We have introduced the software to the spindle production area in Pfronten factory in Germany, and made a significant improvement in productivity and quality. It will soon be installed at Iga Campus and other locations, too.

President's message



Hiroaki Tamai
Executive Vice President

Despite the significant increase in order intake and production volume, some customers were disappointed with longer parts delivery and production lead times in 2018. This resulted in additional expenses and unnecessary inventory. With the lessons learned, we strictly controlled parts delivery schedule and enhanced production efficiency in 2019. It greatly helped us to meet committed delivery times. We also started OEM production of CMX Vi by Lakshmi Machine Works Limited in Coimbatore in India, in order to deliver machines more quickly to Indian customers. In 2020, we develop a new and accurate cost-and-profit calculation method, in which material, labor,

logistics and other costs are managed by serial number. We are now able to precisely capture and forecast profitability upon order intake and sales. Accordingly, Procurement Department discarded the Material Requirements Planning System (MRP) and instead makes purchase orders by model and serial number to avoid unnecessary inventory. Inside factories, parts are efficiently managed and delivered by serial number, too. These initiatives will continuously help us manufacture high-quality products in a productive and timely manner and generate higher operating profit.



■ Solution Centers

DMG MORI has Solution Centers around the world equipped with cutting-edge machine tools and peripheral equipment to solve any machining challenge with customers. The centers constantly exhibit latest models and technology, and professional engineers are stationed there to offer demonstrations, test-cuts, and joint development of workpieces and tools in several languages. In that sense, they are not only “solution” but also “experiment” centers, where new technology is born on a daily basis.

■ Excellence Centers

We have permanent exhibition areas for four major industries; aerospace, medical, die & mold, and automotive. Engineers with specialized knowledge and expertise of each industry propose optimized solutions there.



■ Machining technology database “Technology Monitor”

In 2016, we introduced “Technology Monitor,” a new machining technology database. The database full of latest machining technology, tools, fixtures, and material helps us utilize and share machining knowhow from engineers worldwide.

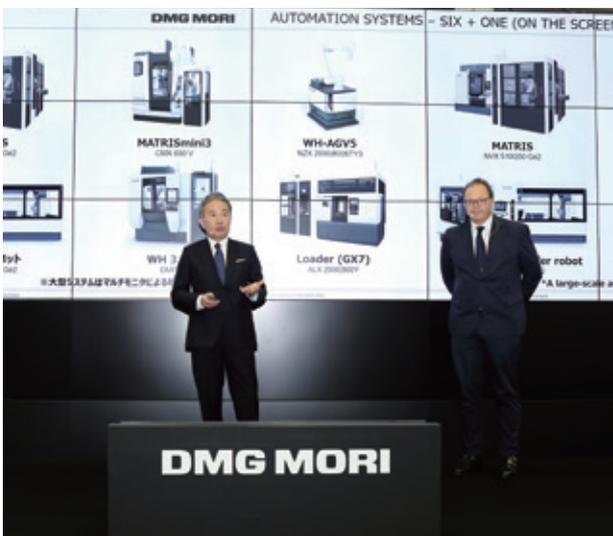
SSEP Headquarters

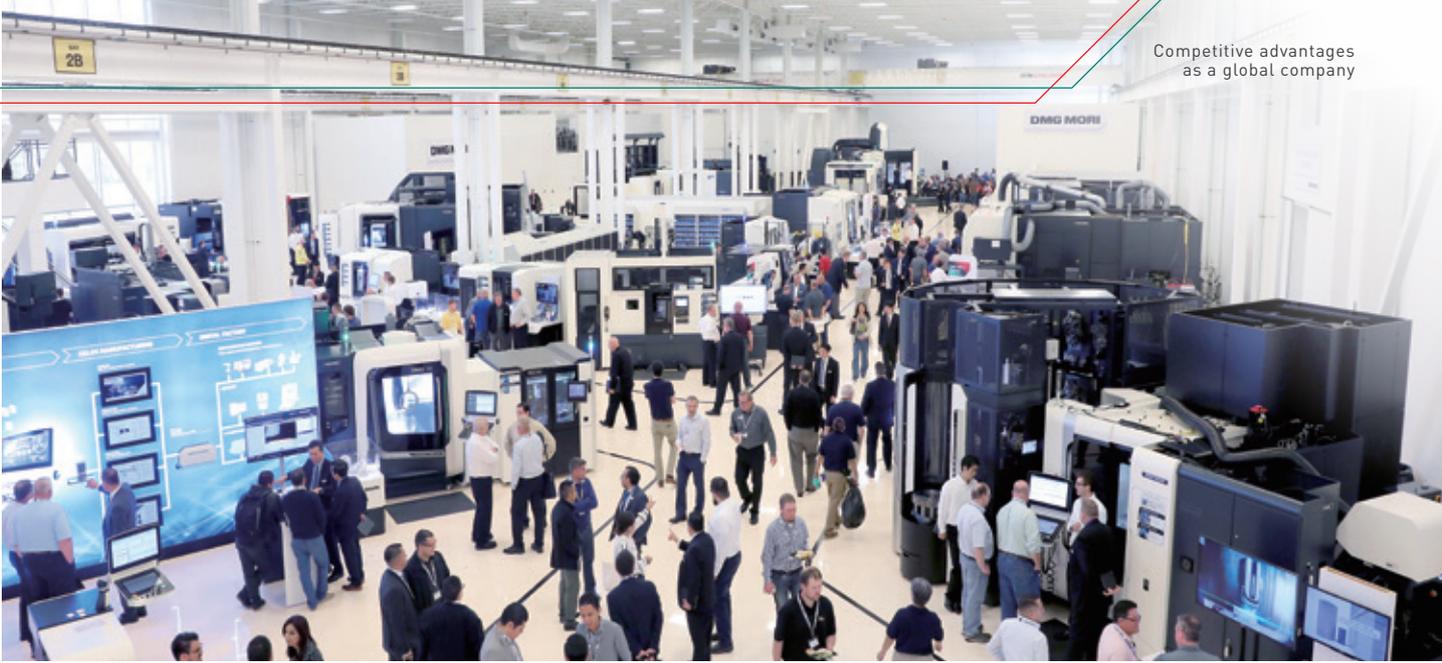
Communicating latest trends to customers worldwide

DMG MORI uses exhibitions as an opportunity to introduce the group-wide activities to visitors. They can enjoy a first-hand experience to our products and technology, as well as our practical and technical knowhow presented with the latest technologies and live demonstrations. Besides holding open houses and participating in external trade fairs, we co-hosted private shows with customers in 2019.

Open houses around the world

DMG MORI hosts open houses in 14 production facilities around the world. During the open houses, visitors can see how a plant could integrate our automation and digitization technologies and learn DMG MORI's knowhow. In 2019, we held open houses in Iga in Japan, Pfronten in Germany, Chicago in the United States on a large scale. Other in-house exhibitions took place in our factories in Italy, China and Poland.





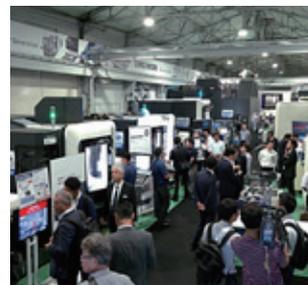
External trade fairs



DMG MORI actively participates in external trade fairs, too. In 2019, we joined the 24th INTERMOLD (International Die, Mold & Related Equipment Exhibition) in Korea in March, and the 16th CIMT (China International Machine Tool Show) in May, EMO (International metalworking trade fair) in Germany in September, and MECT (Mechatronics Technology Japan) 2019 in Nagoya in October. At trade fairs, we display a series of short movies that visualizes complicated movement inside machine tools. At EMO, we exhibited 45 models, some as world premieres, together with 29 automation systems, digital technology, and additive manufacturing technology.

Joint private show with a customer in Japan

Besides open houses and external trade fairs, we co-hosted a private show with a customer in August 2019. Our very first joint private show was held at Nakahara Works Co., Ltd.'s plant in Okayama Prefecture. Two DMG MORI-owned machines were exhibited next to 8 machines owned by Nakahara Works. Nakahara Works has successfully integrated multiple processes and entered into a new business field with DMG MORI's 5-axis machines. Nakahara Works has successfully integrated multiple processes and entered into a new business field with DMG MORI's 5-axis machines. The company is also part of 5-axis Research Group and promotes 5-axis machines with us. The visitors from around 100 companies learned about competitive advantages of 5-axis machines during the event.



Joint private show



Presentation by Mr. Nakahara,
President of Nakahara Works Co., Ltd.

New movie series “DMG MORI × Front Runner”

DMG MORI has captured industry pioneers hungry for new innovations in our new movie series “DMG MORI × Front Runner.” Thanks to the cooperation from customers worldwide, we created short movies for 36 companies in 2019. We uploaded them online and broadcasted some as TV commercials, while some customers used it for their own business purposes. Others also mentioned that the video attracted new business opportunities and new employees.



SSEP Headquarters

AM Lab & Fab



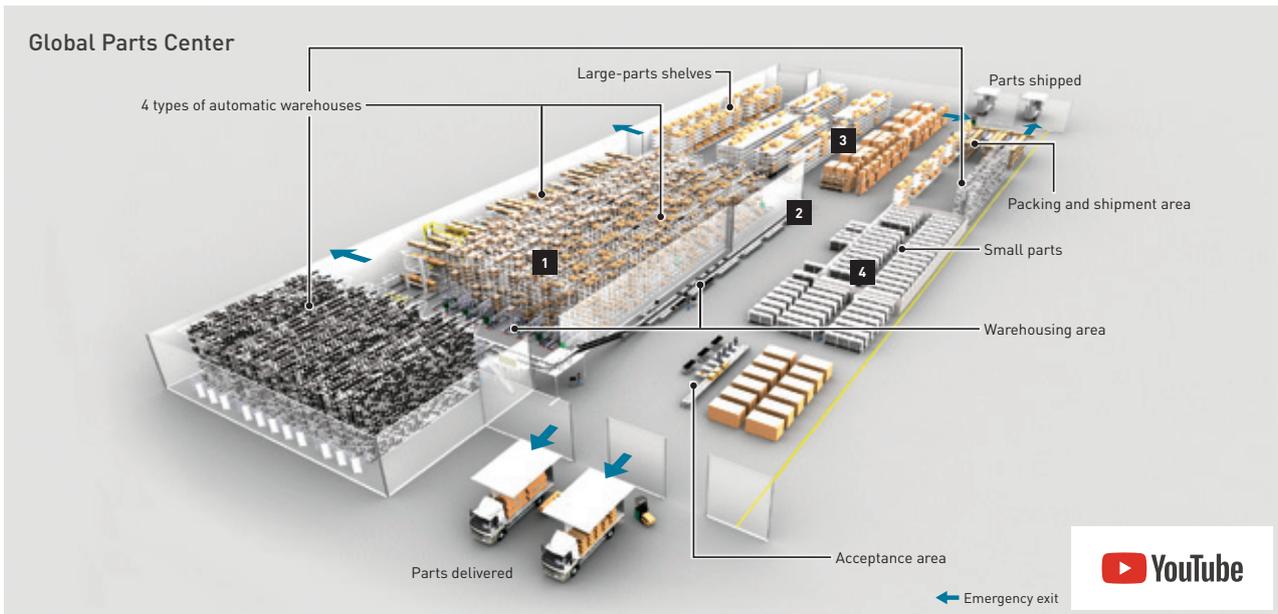
AM Lab & Fab in Tokyo Digital Innovation Center and Iga Campus will soon be available for customers. The two facilities will have two of our latest Additive Manufacturing models, LASERTEC 12 *SLM* and LASERTEC 30 *SLM* 2nd Generation, as well as NIKON Lasermeister 100A, in a room with controlled temperature and humidity. It will allow us to jointly develop laser machining processes optimized for each customer's drawing and powder. Starting from summer of 2020, we will take orders for parts manufacturing, too.



my DMG MORI

In September 2019, we launched a new portal website "my DMG MORI" to offer additional value brought by digitization to customers. The website allows them a quick view through installed machines' information in each factory, including the serial number, delivery date, and warranty expiry date. Manuals and service, repair, and spare parts histories are also easily accessible. We will soon start accepting service and spare parts orders online, which we believe will encourage deeper communication with customers. Already 5,000 accounts have been registered; our short-term target is registration of 40,000 accounts.

Grand opening of Global Parts Center



To make the best after-service globally available, we have parts centers in three locations: Iga in Japan, Geretsried in Germany, and Dallas in the United States. The Global Parts Center in Iga Campus, just relocated from Nara in July 2019, features cutting-edge, high-rise automatic rack warehouses linked with ERP. The picking optimization algorithm of the WMS (Warehouse Management System) ensures prompt and efficient warehouse operations. Moreover, the storage capacity rose by 50% compared with the previous parts center in Nara. Thanks to the automatic warehouses and movable racks, we can now find and reach the stored parts easily. With the great transportation accessibility and enhanced efficiency, we have continuously improved the shipping rate within 24 hours of request for the customer across the world.



President's message



Keiichi Ota
Executive Officer, Dr. Eng.

Despite the severe economic climate, we have gradually increased the average order price with complete solutions and added value in 2019. The new Iga Global Parts Center and the growing number of service engineers have reinforced our after-sales business. Application engineers are getting familiar with 5-axis machines, process integration, automation, and digitization. We will continue those efforts in 2020, while expanding our product portfolio with new digital and financial services. There will be more collaboration projects with peripheral equipment manufacturers to facilitate automation and digitization. We are an engineering trade-house

company; our sales, service, engineering, and spare parts sectors work together to create new innovative value and grow together with customers.

Group Companies

Seeking expertise and providing value

DMG MORI has companies with high expertise under its wings. In June 2018, Tokyo Digital Innovation Center (DIC) was founded. It is home to DMG MORI B.U.G. CO., LTD., Magnescale Co., Ltd., Saki Corporation and TECHNIUM CO., LTD., all members of the DMG MORI group. They provide their joint knowledge and support for improvement of efficiency at customers' sites. The same applies overseas, where proficient group companies individually develop their own technologies, while also merging them with other members of our group.

TAIYO KOKI CO., LTD.

221-35, Seiryō-machi, Nagaoka City, Niigata, Japan



A flexible development & production system to realize customer needs

Taiyo Koki is an innovative and highly skilled manufacturer specialized in grinding machines, such as vertical grinding machines. Grinding machines make the last step of metal processing; hence, require the highest level of accuracy within all machine tools. To meet all customer needs, Taiyo Koki applies a flexible development and production system adjusted to the requirements of each order. After its foundation in 1986, the company became a member of the DMG MORI group in 2001, as well as a listed entity in the JASDAQ Standard market in 2007. In 2019, Taiyo Koki's turnover surpassed JPY 10.0 bn. for the first time. With its technical expertise, highly praised both inside Japan and overseas, the company is devoted to further expanding its market in the whole world.

<http://www.taiyokoki.com/>



Standard test piece for Taiyo Koki machines
outer diameter ϕ 430 mm



CVG-6

TAIYO KOKI

Magnescale Co., Ltd.

45 Suzukawa, Isehara City, Kanagawa, Japan



Laserscale for ultra-high resolution
BL50H

Magnescale for high precision
SQ47



Isehara Factory (R&D base)



Iga Factory (high-precision and vibration-free production)

Magnetic and optical position detection of highest precision

The confidence that magnetic encoders best suit the harsh working environment of NC machine tools led to the foundation of Magnescale in 1969. Last year marked the 50th year of supplying magnetic encoders. High-precision magnetic waveform recording and high-grade interpolation technology make for precision and resolution similar to optical technology, while also including high-level environmental resistance due to magnetic technology. Therefore, Magnescale's products are highly reliable, even under the most extreme conditions. In addition, Magnescale offers Laserscale, an optical encoder with even higher resolution for semiconductor manufacturing systems. It achieves 2.1 picometer, the highest level of resolution in the world. Magnescale will continue to be a pioneer of providing optimized solutions and products for different applications in the production machinery markets.

<http://www.magnescale.com/>

SmartSCALE — SmartSCALE —

Absolute Magnescale combines high resolution and the environmental resistance needed in the severe conditions of machining processes. Its simple structure of separating head and scale enables both wide installation tolerances and a resolution of 0.005 μ m.

- IP67 for dust-resistant and waterproof features
- Maximum response speed 200 m/min
- Maximum resolution 0.005 μ m
- Vibration resistance 250 m/s²

SAKI

Saki Corporation

DMG MORI Tokyo Digital Innovation Center, 3-1-4 Edagawa
Koto-ku, Tokyo, Japan



Development of automatic inspection equipment for electronic parts mounting processes

Saki Corporation provides automatic inspection equipment mainly used for circuit boards and semiconductors. Improving the quality of circuit boards and semiconductors, while reducing errors to minimize waste during production are key to answering recent trends, such as more severe environmental problems, the need for energy-efficient societies and the spreading of IoT. Saki Corporation contributes to inspections of manufacturing processes through its cutting-edge optical and 3D X-ray inspection technology. Simply placing Saki's inspection equipment between each process step allows integration of machine's operation across the entire process. Furthermore, accumulation of the same base data paves the way for quality monitoring by displaying and analyzing this data. Saki Corporation also provides the complete software package for these processes.

<http://www.sakicorp.com/>



3XI PCBA

TECHNIUM

TECHNIUM CO., LTD.

DMG MORI Tokyo Digital Innovation Center, 3-1-4 Edagawa
Koto-ku, Tokyo, Japan



IT for higher efficiency on customer's site

In January 2018, TECHNIUM Co., Ltd. was founded through the joint investment by DMG MORI, owner of cutting-edge technology in the fields of machines, manufacturing and software, and the Nomura Research Institute, developer and operator of innovative services and systems based on consulting and highly reliable IT (Information Technology). TECHNIUM offers digital services that improve productivity and reduce costs throughout the lifecycle of customer's machines. *my* DMG MORI offered by TECHNIUM is one single portal for total management of all data related to customer's machines, such as documents and the history of service and spare parts. TECHNIUM is also expanding its lineup in the direction of educational services for full machine utilization, software-based machine management and services for purchase of peripheral equipment.

<https://www.technium.net/>

■ Key services

Customer Portal

Solutions for central management of information of machines owned by customers and for efficient search for information

Educational services

Quick training of cutting-edge machinery operation

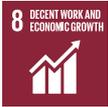
Services for machining and engineering

Support during introduction (run off) and problem solving



ESG

Actions for SDGs (Sustainable Development Goals)

	Contributions to SDGs	Social challenges	DMG MORI's actions
Environment 	 	<ul style="list-style-type: none"> • Reduce CO₂ emissions from customers' factories • Reduce CO₂ and other emissions from manufacturing processes 	<ul style="list-style-type: none"> • Carbon-neutral initiative • Used machine sale • Less energy consumption by GREENmode • Emission monitoring at production sites • Forest preservation
Human Capital 	 	<ul style="list-style-type: none"> • Empowerment of women • Create jobs at business locations • Prevent long working hours and improve productivity 	<ul style="list-style-type: none"> • Support for better work & life balance • Diverse workforce • Work efficiency and productivity improvement
Social Contribution 	 	<ul style="list-style-type: none"> • Give opportunities for high-quality technical education • Promote innovation and efficient resource usage 	<ul style="list-style-type: none"> • Mori Manufacturing Research and Technology Foundation • Contributions to the DMG MORI Scholarship Fund • Support to universities and technical colleges • R&D through collaborations with scientific institutions • DMG MORI Academy • Promotion of sports and art
Governance 		<ul style="list-style-type: none"> • Prevent production of weapons of mass destructions • Reinforce company management 	<ul style="list-style-type: none"> • Ensure peaceful usage of our products through stringent export control regulations • Strict corporate governance

Environmental Data

<DMG MORI CO>

INPUT items		Location	Unit	2015	2016	2017	2018	2019	
Energy input	Production	Electricity [*1]	Japan	thousand kWh	50,851	46,309	46,612	48,164	46,002
		Solar power	Japan	thousand kWh	123	130	127	126	121
		Heavy oil [*2]	Japan	Kℓ	2,574	3,187	3,129	2,218	2,132
		City gas	Japan	thousand m ³	196	175	0	0	0
		LPG	Japan	t	279	228	304	360	317
Water consumption	Production	Clean water	Japan	thousand m ³	121	126	138	139	126
		Groundwater	Japan	thousand m ³	74	104	93	72	37

Energy input and water consumption are dependent on production numbers and machine model composition of each fiscal year.

In the following table, we converted energy input to crude oil consumption.

INPUT items		Location	Unit	2015	2016	2017	2018	2019	
Energy input	Production	Converted to crude oil	Japan	Kℓ	15,906	15,281	15,185	14,082	
OUTPUT items		Location	Unit	2015	2016	2017	2018	2019	
Greenhouse gas	Production	CO ₂ emission [*3]	Japan	t-CO ₂	33,815	32,425	32,197	29,633	26,865
Industrial waste	Production	Final disposal amount	Japan (Iga)	t	153	110	119	130	96
		Final disposal rate	Japan (Iga)	%	4	3	3	4	3

【Scope of data】 DMG MORI's factories in Japan (Iga, Nara, Chiba (until FY2016))

【Fiscal year period】 from January 1st to December 31st.

Environmental data are dependent on production numbers and machine model composition of each fiscal year.

(*1) Energy input "Electricity" indicates the volume purchased from power generation companies.

(*2) Energy input "Heavy oil" includes consumption from self-generated power.

(*3) Greenhouse gas: Volume of CO₂ emission was calculated by using emission coefficients published by power generation companies.

<DMG MORI AG>

ENERGY KEY FIGURES [*1][*2][*6]

in MWh	2017	2018	2019
Fuel consumption from fossil energy sources	76,281	80,506	90,818
of which natural gas	30,681	32,491	33,611
of which liquefied gas	325	364	338
of which heating oil	0	55	0
of which fuel	45,275	47,596	56,869
Electricity consumption	46,757	48,962	52,441
of which procured from the grid	45,456	47,489	49,696
of which self-generation from renewable sources	1,301	1,473	2,745
Energy consumption in total	123,038	129,468	143,259

AG GROUP-WIDE CO₂-BALANCE [*3][*4][*6]

in t CO _{2e}	2017	2018	2019
CO₂-BALANCE Total	—	—	76,754
Scope 1 (direct emissions)	—	—	23,688
Scope 2 (indirect emissions) [*5]	—	—	28,554
Scope 3 (other indirect emissions)	—	—	24,513

(*1) includes the following sites: Germany (Bielefeld, Pfronten, Seebach, new in 2019: Geretsried, Idar-Oberstein); Italy (Brembate di Sopra, Tortona); Poland (Pleszew); Russia (Ulyanovsk). 2018 also includes the Würzburg and Stuttgart locations. These locations and the vehicle fleet account for over 80% of DMG MORI's global energy consumption.

(*2) The conversion factors for liquid gas and heating oil come from the Bundesverband der Energie und Wasserwirtschaft e.V. (BDEW) 2017. The conversion factors for fuels come from the Federal Office of Economics and Export Control (BAFA) 2017.

(*3) The calculation was carried out using the Ecocockpit software from the Efficiency Agency NRW. The emission factors stored there are based on the GEMIS database. Missing emission factors were supplemented by the Probas database of the Federal Environment Agency. In addition to nitrogen trifluoride (NF₃), the six main greenhouse gases in accordance with the Kyoto Protocol were taken into account when calculating the CO₂ equivalents (CO_{2e}): carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrogen-containing fluorocarbons (HFC), perfluorinated hydrocarbons (PF₆) and sulfur hexafluoride (SF₆). Other emissions occur only in small quantities and are not reported separately. The location-based method was chosen to calculate the indirect emissions.

(*4) The CO₂ balance was for the first time prepared in the form shown for 2019.

For 2018 there is no comparable data as only data from seven locations were collected for Scope 1 (19,163 t CO_{2e}) and Scope 2 (21,385 t CO_{2e}).

(*5) without Brembate di Sopra and Tortona due to green electricity consumption (CO₂ factor = 0)

(*6) Figures are extracted from Sustainability Report 2019 page 20-23 of DMG MORI AG.

Environmental protection

We at DMG MORI want our society to be sustainable. Therefore, we take actions to support a carbon-free, zero-waste society, where humans and nature can coexist. We see carbon neutrality as especially crucial. Our whole group is speeding up its efforts towards this goal.

Efforts towards carbon neutrality

In 2020, AG focuses on becoming carbon neutral, or reducing carbon dioxide emissions to net zero. This includes measures such as purchasing energy of sustainable sources and participating in projects for hydroelectric power generation in Africa. In November 2019, AG created a logo that accompanies their motto "DMG MORI CARES". CO is focusing on its owned solar energy-based electricity and shifting towards a greener environment inside their factories. Iga Campus has been conducting researches in the field of biomass-based energy production since 2019. CO also started an internal investigation to record the amount of CO₂ exhausted by our employees while commuting to work every day.



Paper recycling

In October 2019, AG started an initiative called "CEOs For Recycled Paper". It implies the usage of recycled paper with the label called "The Blue Angel", an ecolabel certified by the German government. Besides reducing CO₂ emission, this will contribute to cutting water and energy consumption by at least 70% and 60%, respectively.



Usage of local mineral water

Starting in October 2019, the local mineral water "Blaues Heimatwunder" is provided in our office in Bielefeld. This initiative is part of a society project of Ostwestfalen-Lippe, the surrounding region. Reducing the transportation distance helps protect the environment.



Environmental protection through our own technology

Reduction of annual CO₂ emissions by 2,650 kg / machine

Since September 2017, DMG MORI has standardized GREENmode to save energy consumption. Optimized functions are added in accordance with each machine's application and characteristics with a focus on 4 aspects; shortening lead time, visualizing, eliminating idle time and introducing cutting-edge technology. By combining four different approaches called GREEN control (shortening lead time), GREEN monitoring (visualizing), GREEN idling stop (eliminating idle time), and GREEN device (introducing cutting-edge technology), we support highly-productive and eco-friendly operation at customers' sites. With GREENmode, a machine can reduce the annual CO₂ emission by 2,650 kg. This will have a huge impact for saving energy, as machine tools are used for 15 to 20 years long.



40% energy saving by "GREENmode"

Efforts towards forest preservation

Spreading green spaces

In December 2017, we founded Mahoroba Farm Co., Ltd., and started to cultivate wine grapes on abandoned soil close to Iga Campus. We plan to expand the field to 5 hectares within the coming years. In preparation, we devoted ourselves to further study by receiving consultation on technology in 2019. In 2020, we will launch another greening project, the "DMG MORI Forest" in the Kii Peninsula.



ESG | Diverse workforce

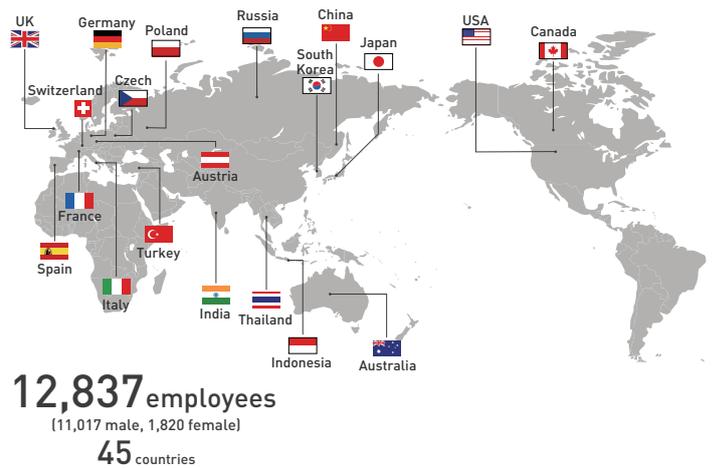
Respecting each employee and promoting diverse workstyles

At DMG MORI, the employees are our most important assets. Therefore, our HR system is designed to encourage each employee to fully develop his/her capacities. The innovations necessary for the continuous growth of our company are a result of the teamwork of our diverse workforce to achieve joint goals based on mutual respect.

Multinational workforce

12,837 employees from 45 countries (as of December 31, 2019)

DMG MORI's workforce consists of 12,837 employees of various languages, nationalities, genders and fields of specialty. In every field and level of our group, employees with different backgrounds cooperate closely in respect with each other. Regardless of different backgrounds, the professionals at DMG MORI combine their efforts to meet one common objective - providing customer solutions of the highest quality.



“Play hard, Study continuously, Work together”

Under the slogan of “Play hard, Study continuously, Work together”, we strive for enriching life through work. Both mental and physical health is important to ensure maximum output at work. Therefore, we honor employees who set good examples. In August 2019, we awarded employees who won a victory in the propeller planes segment of the Birdman Contest for the second time following 2018.



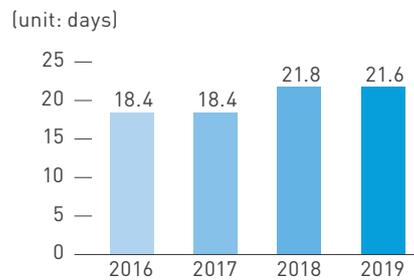
Birdman Club “Birdman Contest”

Creating environment for healthy work

Revision of working hours and the time interval at work

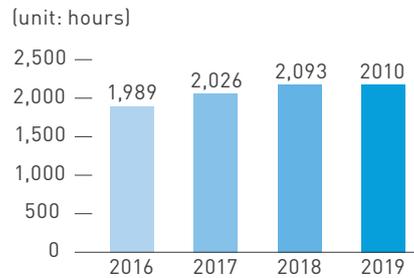
We are devoting ourselves to creating an environment and system which supports a healthy way of working. Our measures include the introduction of mandatory complete medical examination since 2019, and strict management of each employee's total working hours and the number of paid holidays taken. Our new interval system limits the max. time at workplace to 10 hours and obligates employees to take min. 12 hours break between each working day.

Number of paid holidays taken annually per person



*Numbers based on employees in Japan (regular employees, contract workers)
20 days of paid holiday per person

Total annual working hours per person



*Numbers based on employees in Japan (regular employees, contract workers)

Promotion of work-life balance

Stronger child care support

We are strengthening our internal systems to offer easy and long-term support to our employees. Apart from our original initiatives, such as the “DMG MORI Child Care Centers”, we offer parental leave from 0 to 2 years and nursery school allowance as measures above the legal standards. Furthermore, starting from this year, the first 20 days of parental leave are treated as paid holidays in case of min. 20 days consecutive leave. We also actively encourage our male employees to take parental leave.



DMG MORI Childcare Center (Iga Campus)

ESG | Human resources development

Investment in R&D activities and human resources development

We are responsible for cultivating human resources in the machine tool industry. DMG MORI has internal training facilities worldwide, offers scholarships, and lends machine tools to fulfill its obligation to society.

■ Mori Manufacturing Research and Technology Foundation

Investment in R&D activities and human resources development

DMG MORI lends or donates its machine tools worldwide to strengthen alliances with industrial and administrative partners and research institutes at universities, etc. and to support their application research activities. In addition, the company has established a scholarship fund and made donations to nurture talented engineers in Japan and overseas. Mori Manufacturing Research and Technology Foundation was established to take over social corporate responsibility activities from DMG MORI and implement them on a similar and consistent scale. We believe that the foundation's activities to provide continuous support for technology development and innovation of machine tools will strengthen the basis for sustainable growth of the machine tool industry as a whole. We also believe that human resources development through alliances with research institutes worldwide will contribute to global industrial development including in emerging countries. Further, as a part of its social contribution activities, the foundation will strengthen the alliance with local communities by extending support for constructing a cultural environment with higher public value.

1) Support for R&D activities

DMG MORI supports research and development activities of machine tools and related technologies through its joint research and development activities with universities and research institutes worldwide. Another main focus area of the foundation is providing support for international academic conferences, etc.

2) Support for human resources development

The foundation took over the operation and management of "DMG MORI Scholarship Fund", which was established by both DMG MORI Co., Ltd. and DMG MORI AG to support technical college students who suffered from the Great East Japan Earthquake in March 2011. In 2019, it made a contribution of approx. JPY 32 million to National Institute of Technology, an independent administrative agency.



Letter of appreciation from National Institute of Technology



Mori Manufacturing Research and Technology Foundation
(General Incorporated Foundation)

In April 2019, the foundation started a 3-year scholarship program to support six engineering students who entered Ph D programs at either Kyoto University or Keio University in Japan. The recipients of the scholarship are academically active and promising on a global scale; they have participated in academic conferences worldwide, studied abroad for some time, and written papers. Starting from April 2020, the foundation will support five new Ph D students in engineering at Kyoto University and the University of Tokyo.

3) Support for local communities and cultural activities

The foundation's support for local communities and cultural activities is centered in Nara Prefecture, the birth place of DMG MORI, and Iga City in Mie Prefecture, the home to the company's main plant in Japan. In Yamato-Koriyama City of Nara, where the second largest production base in Japan is located, it planted 140 cherry blossom trees to create a beautiful landscape alongside the Bodaisen River which runs close to Nara Campus in Itonocho. DMG MORI proactively supports community activities, too; we sponsor various local events hosted by local communities in Yamato-Koriyama, Iga, and Nabari such as summer festivals, fireworks festivals, and marathons.



Investment in research activities (MTTRF)

Support for research institutes and participation in academic conferences

MTTRF (Machine Tool Technologies Research Foundation) is a non-profit organization accredited by the US government and financially supported by DMG MORI and other companies around the globe. Through MTTRF, DMG MORI has offered state-of-the-art machine tools, peripheral equipment, and software to universities and academic institutions globally. At the annual meeting in June 2019, Dr. Masahiko Mori, President of DMG MORI, gave a key-note speech.



Machines lent or donated to:

The United States	The University of California, Davis, The University of North Carolina at Charlotte MTTRF Berkeley Institute
Switzerland	The University of Zurich
Italy	The University of Florence
Austria	Vienna University of Technology
Belgium	Catholic University of Leuven
Japan	Kobe University, Kanazawa University, Osaka Institute of Technology, Toyohashi University of Technology

ESG | Human resources development



DMG MORI Academy

Developing globally active human resources

DMG MORI believes that our employees are an important asset. Therefore, we founded DMG MORI Academy to develop international-minded business people with technical and administrative skills. We also offer various on-site trainings and e-learning programs for customers and cultivate human resources worldwide.

Training programs for employees

We offer trainings to new employees, technical, sales, and production staff, and application and service engineers. The trainees can learn a variety of topics from basic knowledge and operation skills of machine tools to safety measures and business conduct.

With a series of latest models installed in the training facility, the academy also develops all-rounders who can operate different models from turning centers to 5-axis machining centers.

Training programs for customers

We offer various training programs to customers and help them develop skillful operators and set up newly-installed machines. They can choose from operation trainings of machines (e.g. 5-axis machines) and peripheral equipment (e.g. robots) among others. Furthermore, our service “Education on Demand” is available for access anytime by any device capable of internet connection, such as computers. We aim to maximize customers’ experiences through these services.



Support to WorldSkills

Offering machine tools to the competition



Since 2016, DMG MORI has been a Global Industry Partner of WorldSkills International, a world championship of vocational skills. We provided 45 machines to WorldSkills Kazan 2019 in Russia, and will be a main sponsor for WorldSkills Shanghai 2021.

Emerging Technologies Laboratory Center

Unique R&D activities and technology application

The center was founded in January 2017, under the initiative of Director Katsumori Matsushima, Professor Emeritus at the University of Tokyo. It works on cutting-edge research to respond to digital transformation including IoT. In 2019, the center developed an AI-supported system to search past machine orders with customized specifications. As the system expanded the scope and improved accessibility later that year, it significantly enhanced our response speed in quotation, design, and service.

The Cutting Dream Contest

The contest is open to all companies, schools, and research institutions working with cutting and advanced machine tools, and it aims to facilitate exchanges and development of cutting technologies and techniques in the industry. Out of the 60 participants in the 14th Cutting Dream Contest, internal and external experts carefully selected winners in “Industrial Parts Machining”, “Prototype & Test-cut Machining”, “Molding (Free Form Machining)”, “Academic”, and a new category “Advanced Machining”. We also awarded “DMG MORI 5-axis Prize” to an outstanding contestant.

The 14th Cutting Dream Contest Award Winners

Industrial Parts Machining - Gold Prize winner

Syringe / manual injector
SHISHIDO SEIKOU Co., Ltd.



Prototype & Test Cut Machining - Gold Prize winner

Ceramic shaftless screw
KYOCERA Corporation



Molding (Free Form Machining) - Gold Prize winner

Jumping spider
Circle and Square Co., Ltd.



Academic - Gold Prize winner

Screw of Reuleaux triangle
Hyogo Prefectural Kobe Advanced Institute of Technology



Advanced Machining - AM Technology Prize winner

The biggest part *SLM* 500 can make
Tamachi Industries Co., Ltd.



Advanced Machining - AM Idea Prize winner

Soft Metal Cloth / uncomfortable cloth
IFUKU SEIMITSU Co., Ltd.



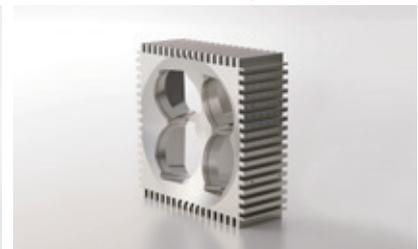
Advanced Machining - AM Idea Prize winner

Glass for metal lovers
IFUKU SEIMITSU Co., Ltd.



DMG MORI 5-axis Prize winner

Lamp holder
NAGAYAMA Industry Co., Ltd.



ESG | Contribution to local communities

Contribution to local communities

DMG MORI actively fulfills its social responsibility by supporting local communities, which we believe is a basis of a trusted relationship. We encourage development of young talents in education, science, art, culture, and sports.

- Collaboration with Nara, Mie, and other municipalities

Collaboration with municipalities

DMG MORI concluded a comprehensive agreement to encourage regional revitalization and technical education with Nara Prefecture (the birthplace of Mori Seiki Co., Ltd.) in March 2017, and with Mie Prefecture (home to Iga Campus, the largest production base of DMG MORI) in April 2018. Since then, we have lent cutting-edge machine tools to technical high schools and



other educational institutions in the area. In 2019, Iga City in Mie Prefecture and DMG MORI signed a comprehensive agreement to revitalize the Nishi-Tsuge area.

- Support for musical activities

Nurturing and promoting music culture

DMG MORI is a special sponsor to “Nara Piano Friends,” a unique music festival featuring the piano in Nara since 2012. In June 2019, the 7th Nara Piano Friends took place in DMG MORI Yamato Koriyamajo Hall. Mr. Shinya Kiyozuka supervised the event and invited Ms. Yukie Nishimura, TSUKEMEN, and Ms. Aoi Teshima as guest performers. In December, we hosted piano recitals with Adolfo Barabino, a renowned pianist based in Europe, both in Tokyo and Nagoya. We also contributed EUR 2,000 to Musikverein Bielefeld, a professional musicians’ group in Bielefeld.



©Nara Piano Friends/MBS

- Collaboration with Arab Organization for Industrialization

Design, production, inspection, and verification of medical components

DMG MORI has played an active role in Africa’s development. DMG MORI Academy launched training programs in Egypt in April 2019, and concluded a Memorandum of Understanding to collaborate with Arab Organization for Industrialization (AOI) in June. The collaboration aims to establish a factory to produce medical components, and we plan to provide AOI with high-quality turn-key solutions that covers design, production, inspection and verification for the facility.



- Sharing our assets with locals

Development of young talents

DMG MORI AG not only supports universities and educational institutions financially, but also exchanges knowledge and ideas with them. For instance, it has founded a joint venture (Bielefeld Marketing GmbH) and an art association (Bielefeld Kunstverein) with Bielefeld University. It also sponsors “Girl’s Day” and “Future Day” among other events for career development and contributed EUR 450,000 to soccer teams and hospices in Europe in 2019.



Promotion and social contribution through sports marketing

DMG MORI sponsors sports teams. Sports marketing helps us promote our products through sponsorship and partnership and build win-win relationships with athletes.

DMG MORI SAILING TEAM



Challenge to the severest yacht race

On October 30th, 2019, DMG MORI launched DMG MORI SAILING TEAM with Mr. Kojiro Shiraishi, a marine adventurer. The team will compete in the “Vendée Globe2020,” a solo, non-stop, round-the-world yacht race without assistance, from November 2020 in France. We aim to cross the finish line of the world’s toughest yacht race.

In September 2019, the Christening Ceremony of our new foiling boat “DMG MORI Global One” took place in Lorient, France. The new boat’s design in black-and-white reflects durability to

withstand rough seas, speed by incorporating cutting-edge technology, and solidarity of DMG MORI, the team, and all supporters, with the message that we will overcome the hardships that await us in the race together. The boat is equipped with components machined by our latest models of 5-axis and multi-tasking machines.

The team will also participate in transatlantic yacht races, “The Transat” in May and “Transat NY-Vendée” in June 2020 to win a spot in Vendée Globe2020 in November 2020.





▣ WRC (FIA World Rally Championship)

Promotion as a technology partner



DMG MORI has supported TOYOTA GAZOO Racing World Rally Team (TGR WRT) in FIA World Rally Championship (WRC) since 2017.

TGT WRT's technical superiority has been proven; they won the manufacturer's title in WRC 2018 and driver's title in 2019. As a technology partner to TGR WRT, DMG MORI offers machines to TOYOTA Motorsport GmbH (TMG) for the production of engines and many other components of Yaris WRC.

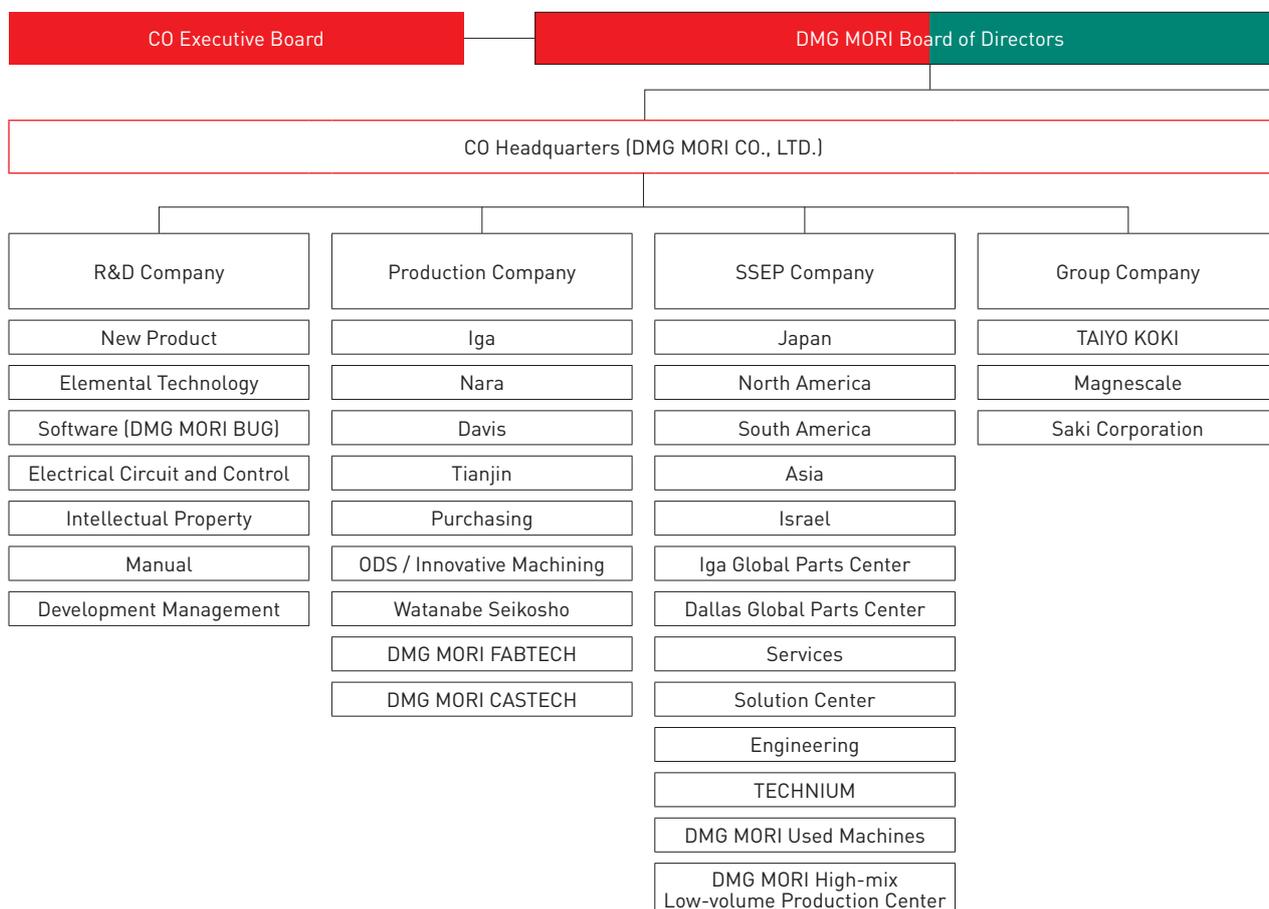
As WRC 2020 will be held in Japan for the first time in a decade,

the event draws increasing attention from domestic and international motor sports fans.



ESG | Governance

Organization chart (from January 2019)



Corporate Governance

1. Our Basic Approaches to Corporate Governance

Enhancing corporate governance and management monitoring functions is the first priority for DMG MORI, because it leads to higher transparency of our business to the entire society including our shareholders, investors, customers and business partners, employees, and members of communities, and to make our business operations fair and efficient.

We will continue to work on improving our corporate value with consistency for long term, and continuing business based on even higher standards of corporate ethics.

2. Corporate Governance Structure

DMG MORI applies an audit system by Auditors.

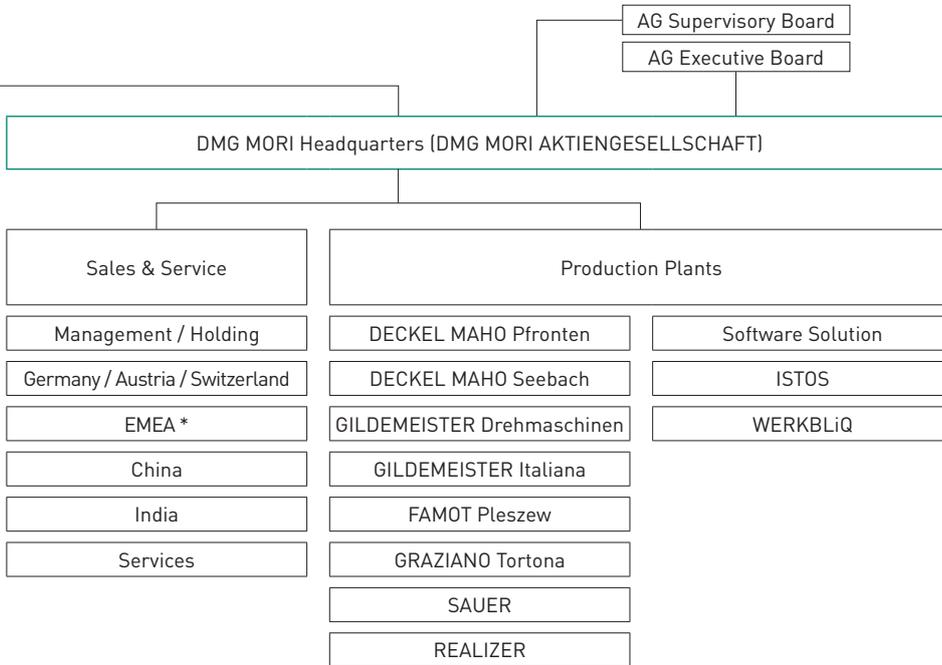
Our basic approach is to execute top-down business decisions quickly and efficiently, founded on the prevailed audit system exercised by appointed Auditors.

3. Board of Directors

Out of 10 members of the Board of Directors, 4 are External Directors (Ratio of External Directors being 40%) as of March 24, 2020.

We have been coping with quick changes in the market environment and technology trends that are unique to the machine tool industry. Against this background, our management structure consisted of a limited number of Directors supported by Operating Officers to enable quick decision making. Since 2015, however, we increase the number of Directors by appointing External Directors. Since March 2019, the top executives of DMG MORI AG and DMG MORI USA Inc. have become members of the Board of Directors and we are conducting flexible management through diversity. Their presence provides increased transparency and objectiveness to the company's business. All of the 4 External Directors have professional management experience. They bring in a wide range of insights based on their specialized knowledge in engineering and other areas.

The Board of Directors discusses on important business strategies for the future of the company. Discussions on daily business operations are conducted at the meetings of the Management Committee and Operating Officers. This structure enables extensive discussions by the Board of Directors and at the same time quick action in business operations.



* Europe, Middle East and Africa

4. Audit and Supervisory Board

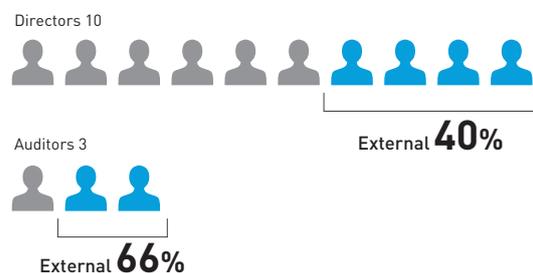
The Board of Auditors consists of a full-time Corporate Auditor, a former Executive Officer with extensive knowledge in company's operations, and External Directors, who are more independent from company's business. In accordance with the audit principles, each Auditor attends and makes comments at meetings of the Board of Directors, Operating Officers and departments, and other important meetings. They inspect documents for important decision making and conduct strict audit over the headquarters, departments, campuses, technical centers, and subsidiaries in and outside of Japan. To conclude, DMG MORI's corporate governance structure is efficient; it makes the company's management fair and transparent, because management reforms such as establishing a compliance system are made possible by quick decision making of a small number of Directors and by productive discussions at meetings of the Board of Directors.

5. Governance at AG

AG, as a German company, has a governance system different from the Japanese. At AG, appointment of Directors and approval of business and investment plans are determined by the Supervisory Board, which exercises control over the Board of

Directors. Therefore, controlling the Supervisory Board is crucial to appoint Directors who are appropriate to realize the integrated business and finance of CO and AG. Dr. Masahiko Mori, President of CO, was appointed as the Chairman of the Supervisory Board of AG in May 2018. In addition, Mr. James Nudo, Executive Director and Ms. Irene Bader, Executive Officer in CO assumed office as supervisory board members. This has further strengthened governance over AG. Joint meetings of Dr. Mori and executives of CO and AG are held once a month to discuss and manage the status of everyday operations at the group's sales and production bases. The result is joint decision making as one global company.

Ratio of External as of March 24, 2020



ESG | Governance (Members of the Board of Directors)

Introduction of Directors As of March 24th, 2020

Name / Brief personal history



Masahiko Mori President, Dr. Eng.

Dr. Mori was born in Nara in 1961. After graduating from Kyoto University, Engineering Faculty, Department of Precision Engineering in 1985, he started his career at ITOCHU Corporation. Later in 1993, he joined Mori Seiki Co., Ltd. (current DMG MORI CO., LTD.) In 1999, he became President at the age of 37 by succeeding his father Yukio. Aside from his professional career, he gained a doctorate in Engineering at the University of Tokyo. He was appointed as a member of the Supervisory Board of GILDEMEISTER AKTIENGESELLSCHAFT (current DMG MORI AKTIENGESELLSCHAFT) in November 2009, as the chairman of said board in May 2018. Dr. Mori is Vice Chairman of the Japan Machine Tool Builders' Association, Fellow of CIRP (The International Academy for Production Engineering), and Director of KYOTO UNIVERSITY INNOVATION CAPITAL Co., Ltd.



Christian Thönes Vice President

After studying business management at the University of Münster, he joined GILDEMEISTER AKTIENGESELLSCHAFT (current DMG MORI AKTIENGESELLSCHAFT) in 1998. He became Head of Global Business Development, Sales and Marketing in 2000, and Managing Director of SAUER GmbH in 2001 to establish Advanced Technologies: ULTRASONIC, LASERTEC, and ADDITIVE MANUFACTURING. In 2009, he led DECKEL MAHO Pfronten GmbH as Managing Director. In 2012, he became a member of the Executive Board of AG in charge of production and product development, and its chairman in 2016. Throughout the cooperation with CO, he drives technological, organizational, and cultural integration as "Global One Company".



Hiroaki Tamai Executive Vice President

After graduating from Doshisha University, Faculty of Commerce in 1983, he started his career as an accounting specialist at Mori Seiki Co., Ltd. (current DMG MORI CO., LTD.). He was transferred to the U.S. sales company in 1984 and learned machine tool business and accounting in the U.S. Upon his return to Japan in 1988, he gained further experience in accounting, tax and finance. For a decade since 1992, he acquired management skills by supporting the president as the head of Management Planning Office. In August 2002, he led the partial business acquisition from Hitachi Seiki Co., Ltd. and establishment of a new company. Since 2009, when CO started business collaboration with AG, he leads business culture integration and talent development as Director in charge of human resources. Since February 2020 he is also in charge of production.



Hirotake Kobayashi Executive Vice President

Mr. Kobayashi graduated from Keio University, Faculty of Economy in 1977. He also studied PMD at Harvard Business School. He started his career at Kirin Brewery Co., Ltd., (current Kirin Holdings Company Limited) and was engaged in planning and executing overseas business growth strategy. He led negotiations on investment in a brewery company in Australia and other domestic and international M&As. He became Representative Director and Managing Director of Kirin Holdings in 2012, responsible for business investment, collaboration and information strategy. Since joining DMG MORI CO., LTD. in 2015, Mr. Kobayashi facilitates the group's integration in accounting and financial fields. He will be continuously committed to cultivating a solid accounting and financial basis for business expansion to meet shareholders' and investors' expectations.



Makoto Fujishima Executive Director, Dr. Eng.

After graduating from the Department of Electronic Engineering, Faculty of Engineering, Doshisha University in 1981, he started his career at Mori Seiki Co., Ltd. (current DMG MORI Co., Ltd.) In 1997, he developed control systems such as Human Machine Interface as manager of Control Technology Department. He earned his Ph.D. in Engineering at Kyoto University in 2002. He was appointed as Director in 2003 and Executive General Manager of Development Headquarters in 2005. In 2008, he moved to the United States as CEO of Digital Technology Laboratory. After his return to Japan, he led procurement for 2 years, before again taking responsibility in development to head business collaboration with AG. He was appointed as R&D Headquarters' President in 2019. He re-organized the development system from machine models-based to elementary technology-based structure. He promotes the development of innovative products and elementary technology.



James Nudo Executive Director, J.D.

After graduating from Loyola University, Chicago in 1981 with a Juris Doctor degree, Mr. Nudo became licensed to practice law in the State of Illinois and in U.S. Federal Court. In 1992, he joined YAMAZEN INC., the U.S. subsidiary of YAMAZEN CORPORATION. In 2000, again from Loyola he received a Master of Science, Organization Development degree. In 2003, he joined Mori Seiki Co. Ltd. (current DMG MORI CO., LTD.) initially as General Counsel of its U.S. subsidiary until relocating to the parent company in Japan in 2005 with responsibility for international legal matters. During his tenure in Japan, he was involved with the business cooperation with AG and is still involved in the integration of the companies. Since 2017, he has been in the U.S., as President of DMG MORI USA, INC. In 2019, he became a member of the Supervisory Board of AG.

Introduction of External Directors As of March 24th, 2020

	Name / Brief personal history	Relationships with our company
 <p>Tojiro Aoyama External Director, Ph D.</p>	<p>He obtained a bachelor's degree in 1974, a master's degree in 1976 and an engineering doctorate in 1979 from the Department of Mechanical Engineering, Faculty of Engineering, Keio University. His doctorate thesis themed "Dynamic behavior of hydrostatic thrust bearings and the optimum design method." He became an assistant of the said department in April 1979, and after serving as a fulltime lecturer and an associate college professor, he was promoted to a professor in 1995. During his tenure as an assistant, he studied tribology for one year at RWTH Aachen University in Germany. He was assigned to the dean of the Faculty of Science and Technology and the chair of Graduate School of Science and Technology in July 2009, and to a professor emeritus in April 2017. He has been the vice-president of Keio University since May 2017. He specializes in production engineering and his scope of researches includes sophistication of constituent elements of machine tools, development of functional materials and monitoring of machining process. He is a fellow for CIRP (The International Academy for Production Engineering), the Japan Society of Mechanical Engineers and the Japan Society for Precision Engineering. He has been in DMG MORI as an external director since June 2015, utilizing his academic expertise and experiences in university management to advise on technology development and trainings, in pursuit of further contribution to machine tool technology around the world.</p>	<p>Currently, Tojiro Aoyama assumes the position of Vice-President of Keio University, and the company engages in transactions (joint researches) with Keio University. He also assumes the position of Outside Director of Mitsubishi Pencil Co., Ltd. There is no special relationship between the company and Mitsubishi Pencil Co., Ltd., and the company has determined that this is not something that affects the independence of Tojiro Aoyama.</p>
 <p>Tsuyoshi Nomura External Director, Dr. Eng.</p>	<p>He obtained a master's degree from the Department of Precision Engineering, Graduate School of Engineering, Kyoto University in 1978. Upon the graduation, he joined Kobe Shipyard & Machinery Works, Mitsubishi Heavy Industries, Ltd. and designed nuclear power plants. He moved to Production Engineering Laboratory, Matsushita Electric Industrial Co., Ltd. (current Panasonic Corporation) in 1990. In 2000, he earned a qualification for Professional Engineer. He practiced analysis simulation technology [CAE], as well as measuring, inspection, kinematics, control, and material process technology, after which he joined a fuel cell project and Jisso Core Engineering Lab. He was assigned to President of Advanced Production Systems Development Company, Limited, whose scope includes production facility, die and mold, and software businesses, and later to Executive Officer of Manufacturing Innovation Division to lead the production technology and manufacturing projects of the whole group. He became Director in 2009, Managing Director in 2013, and Managing Executive officer of Manufacturing Innovation Division in charge of manufacturing innovation, quality, logistics and procurement, and environment. He earned an engineering doctorate in 2013 from Osaka University. After retiring from Panasonic, he founded Nomura Techno Science Co., Ltd. to provide start-up companies with support for manufacturing and management by utilizing industry-academia network. He contributes to further growth of DMG MORI with his long-term management experience, first-hand practices in production technology, quality, procurement and environment, and the wide range of technical knowledge.</p>	<p>Currently, Tsuyoshi Nomura assumes the position of President of Nomura Techno Science Co., Ltd. There is no special relationship between the company and Nomura Techno Science Co., Ltd., and the company has determined that this is not something that affects the independence of Tsuyoshi Nomura.</p>
 <p>Makoto Nakajima External Director Attorney</p>	<p>After graduating from the Faculty of Law, University of Tokyo, he joined Ministry of International Trade and Industry (current Ministry of Economy, Trade and Industry). He was assigned as a responsible official for commercial negotiation and industrial cooperation at the Mission of Japan to the EC / Embassy of Japan in Belgium for 3 years since May 1984. Upon his return to Japan, he proceeded through Trade Policy Bureau, Industrial Policy Bureau (where he founded Intellectual Property Policy Office, using the word "intellectual property" for the first time, protected trade secrets with Unfair Competition Prevention Act, and introduced stock options to promote business innovations of companies and ventures), Secretary to the Minister, Director of Policy Evaluation and Public Relations Division, Trade Bureau (where he promoted trade insurance system), Director of Industrial Machinery Division and Director of Budget and Account Division. He became Director General of Kinki Bureau of Economy, Trade and Industry in 2001, and Director General of Trade and Economic and Cooperation Bureau (where he reached Japan-Mexico Economic Partnership Agreement). In 2005, he assumed office as Commissioner of Japan Patent Office, committed himself to acceleration of patent examination process, globalization and alignment with other countries' patent system. He also started the five-nation commissioner meeting with the U.S., EU, China and Korea during his tenure. He joined Sumitomo Electric Industries, Ltd. in 2008. He was registered as attorney in 2009, and practiced law in management planning, legal affairs, intellectual property, public relations and export control. In June 2016, when he was Representative Senior Managing Director of Sumitomo Electric, he retired from the company and soon after he joined Japan Institute of Invention and Innovation as Vice Chairman and Senior Executive Managing Director, where he has promoted invention and raised awareness of intellectual property system. He has been DMG MORI's External Director since March 2017.</p>	<p>Currently, Makoto Nakajima assumes the position of Vice Chairman and Senior Executive Managing Director of Japan Institute of Invention and Innovation. There is no special relationship between the company and Japan Institute of Invention and Innovation, and the company has determined that this is not something that affects the independence of Makoto Nakajima.</p>
 <p>Takashi Mitachi External Director</p>	<p>He earned a bachelor's degree from the Faculty of Letters, Kyoto University in 1979, and MBA from Harvard Business School with Baker Scholar in 1992. He had been engaged in management consulting for directors of major companies in The Boston Consulting Group for 24 years. He served as Japan Co-chair of the said company and a member of Global Executive Committee for a long term, and is experienced in management of global company himself. He advises the government from business point of view, as Vice Chairman of KEIZAI DOYUKAI (Japan Association of Corporate Executives) and a member of several panels of experts. He is also a member of Global Agenda Council of World Economic Forum (Davos conference), and he proposes solutions to Global Agenda Council in his duty. He continuously contributes to enhancing the corporate value of DMG MORI by supporting management internationalization with his rich experiences.</p>	<p>Currently, Takashi Mitachi assumes the position of Senior Advisor of The Boston Consulting Group. Whereas the company engages in transactions with The Boston Consulting Group (consulting agreements, etc.), the total amounts transacted in FY2019 are negligible, as they were less than 1% of the total amount of Cost of sales and Selling, general and administrative expenses of the company. Takashi Mitachi also serves as Outside Director of Rakuten, Inc., Outside Director of Unicharm Corporation, and Director (Outside Director) of Tokyo Marine Holdings, Inc. Whereas the company engages in transactions with Tokyo Marine Holdings, Inc. (insurance agreements, etc.), the total amounts transacted in FY2019 are negligible, as they were less than 1% of the total amount of Cost of sales and Selling, general and administrative expenses of the company. There is no special relationship between the company and Rakuten, Inc. or Unicharm Corporation, and the company has determined that this is not something that affects the independence of Takashi Mitachi.</p>

ESG | Governance (Members of the Auditor and Supervisory Board)

Introduction of Auditors As of March 24th, 2020

	Name / Brief personal history	Relationships with our company	External auditors
 <p>Toshio Kawayama Corporate Auditor</p>	<p>After graduating from Meiji University's School of Law in 1984, Mr. Kawayama started his career in NTN Toyo Bearing Co., Ltd. (current NTN Corporation). First, he gained experiences in accounting of headquarters and manufacturing cost. While stationed in the United States from 1992 to 1998, he earned a global viewpoint and deepened his expertise through introduction of an accounting system and troubleshooting of trade-related issues. Back in Japan, he was assigned as Deputy General Manager of Finance Headquarters / General Manager of Budgeting Department, mainly responsible for budget management. In January 2009, Mr. Kawayama joined Mori Seiki Co., Ltd. (current DMG MORI CO., LTD.) and has been engaged in various fields from headquarter accounting, factory accounting, to budget management. He introduced the International Financial Reporting Standards (IFRS) and the Advance Pricing Agreement (APA) for transfer pricing taxation, and also accelerated the vitally-important accounting integration with DMG MORI AG by handling complicated accounting procedures and unified accounting standards. He was appointed to Operating Officer in 2011 and Executive Officer in 2015, and has greatly contributed to DMG MORI's accounting as a supervisor of Accounting / Finance Headquarters. In March 2019, Mr. Kawayama became a member of Audit & Supervisory Board. With the accounting experience and knowledge cultivated over many years, he will further strengthen DMG MORI's global corporate governance system.</p>		
 <p>Sojiro Tsuchiya External Auditor, Dr. Eng.</p>	<p>After graduating from the Graduate School of Engineering at Nagoya University, he joined Nippondenso Co., Ltd. (current DENSO CORPORATION) in 1975. As a production engineer, he developed production systems of precision parts of cars, including development and utilization of machining technologies such as cutting and grinding. Later, he was responsible for productivity improvement of the whole factory through CIM (Construction Information Modeling / Management) and FA (Factory Automation). In 2001, he earned a Ph D in Engineering from Gifu University by his research in precision control of hydraulic technology. In 2002, he was appointed as Executive Director and Member of the Board to lead the entire production engineering and manufacturing departments at DENSO. In 2011, he became Executive Vice President to lead the production globally. In 2013, he left the position, but continued to provide advice on production engineering as Executive Advisory Engineer / Advisor until 2016. In March 2017, he was appointed as External Auditor of DMG MORI. At the same time, he serves as External Director of Toyota Gosei Co., Ltd. and NISSEI CORPORATION, as well as Chairman of Japan Institute of Plant Maintenance. He engages himself pro-actively in management and development of production engineering. As External Auditor of DMG MORI, he provides insights from customers' point of view as a long-time user of machine tools, and exercises control over the company's management based on his knowledge in management and production engineering.</p>	<p>Currently, Sojiro Tsuchiya assumes the position of Outside Director of NISSEI CORPORATION and Outside Director of Toyota Gosei Co., Ltd. Whereas the company engages in transactions with NISSEI CORPORATION and Toyota Gosei Co., Ltd. (product sales, etc.), the total amounts transacted in FY2019 are negligible, as they were less than 1% of the total amount of sales of the company, and the company has determined that this is not something that affects the independence of Sojiro Tsuchiya.</p>	
 <p>Yoshinori Kawamura External Auditor</p>	<p>In 1975, he joined The Sumitomo Bank, Limited (current Sumitomo Mitsui Banking Corporation). He acquired expertise in international business and investment banking. In area of international business, he spent 16 years in the United States; he managed the financial crisis in the 1990s, and led strategic sales, integrated risk management, and compliance with financial control regulations as Managing Director and Head of the Americas Division. In area of investment banking, he focused on M&A and project finance. In 2006, he became a member of the management board. As Managing Director for international business, he led the bank's overall strategy for globalization. Also, as Managing Director for corporate finance, he worked out business and risk management strategies for client companies. In 2011, he became President of Sumitomo Mitsui Finance and Leasing Company, Limited. He expanded business and strengthened management before his resignation in 2017. As President of the company, he took initiatives in aircraft leasing and large-scale acquisition of GE's leasing business in Japan. He also directed relocation of the Headquarters. Based on his experience in overseas business, mainly in the United States, as well as in acquisition of foreign companies' leasing business, he well recognizes challenges in effective risk management and construction of the governance system of global companies. He brings in such expertise as an Auditor of DMG MORI.</p>	<p>Currently, Yoshinori Kawamura assumes the position of Director (part-time) of HANSHIN ELECTRIC RAILWAY CO., LTD. and Outside Director of Japan Bank for International Cooperation. There is no special relationship between the company and HANSHIN ELECTRIC RAILWAY CO., LTD. and Japan Bank for International Cooperation, and the company has determined that this is not something that affects the independence of Yoshinori Kawamura.</p>	

Remuneration of Corporate Officers

The amount of remuneration, etc. of DMG MORI's Corporate Officers and the principle for its calculation method are determined within the remuneration framework approved by the Annual General Meeting of Shareholders. In case of Directors, remunerations are determined by taking each Director's contributions to business and the status of business execution into account. In case of Auditors, remunerations are determined by discussions among Auditors. The table below shows the remunerations in 2019.

■ Remuneration of Directors and Auditors: Directors and Auditors appointed by the Annual General Meeting of Shareholders on March 22, 2019 (January-December, 2019)

Title	Name	Company name	Basic compensation (mil. JPY)	Bonus (mil. JPY)	Share-based payment (mil. JPY)	Total (mil. JPY)	Note
President	Masahiko Mori	DMG MORI CO., LTD.	186	180	4	370	
Vice President	Christian Thönes (*1)	DMG MORI AG	109	395	—	505	Appointed in March 2019
Vice President	Hiroaki Tamai	DMG MORI CO., LTD.	92	80	5	177	
Vice President	Hirotake Kobayashi	DMG MORI CO., LTD.	92	80	8	181	
Executive Director	Makoto Fujishima	DMG MORI CO., LTD.	37	40	—	77	Appointed in March 2019
Executive Director	James Nudo (*2)	DMG MORI USA, INC.	41	43	—	85	Appointed in March 2019
1 Director		DMG MORI CO., LTD.	26	28	—	54	Appointed in March 2019
4 External Directors		DMG MORI CO., LTD.	96	—	—	96	
1 Corporate Auditor		DMG MORI CO., LTD.	23	8	0	31	Appointed in March 2019
2 External Auditors		DMG MORI CO., LTD.	28	0	0	28	

(*1) The remuneration of Christian Thönes is paid by DMG MOAI AG. The remuneration of Christian Thönes is decided by the Supervisory Board of AG by following strict rules. His remuneration consists of fixed and variable components, as well as pension plan expenses. The variable components comprise a short-term incentive (STI) and a long-term incentive (LTI). The amount of STI and LTI is decided by the achievement ratio of AG's business performance targets on order intake amount and EBIT, and individual targets on specific business strategies. The remuneration amount is disclosed by following the rules of Frankfurt Stock Exchange DAX. (See P29-31 of AG Annual Report 2019)

(*2) The remuneration of James Nudo is paid by DMG MORI USA, INC.

Attendance at important meetings by each Director and Auditor

The Board of Directors convened 13 meetings with the attendance of External Directors and External Auditors to plan management strategies, and to enhance appropriate and efficient business execution by each Director. Furthermore, the Management Meeting consisting of Directors and full-time Corporate Auditor convened 13 meetings, and Operating Officers convened 10 meetings, to understand and manage the risks of the entire business operations. This table shows the status of attendance by each Director and Auditor at meetings of the Board of Directors.

■ Status of attendance at meetings of the Board of Directors (January-December, 2019)

	Name	Status of attendance	Note
Directors	Masahiko Mori	Attended 13 out of 13 meetings	
	Christian Thönes	Attended 10 out of 10 meetings	10 meetings were held after appointment on March 22, 2019
	Hiroaki Tamai	Attended 13 out of 13 meetings	
	Hirotake Kobayashi	Attended 13 out of 13 meetings	
	Makoto Fujishima	Attended 10 out of 10 meetings	10 meetings were held after appointment on March 22, 2019
	James Nudo	Attended 10 out of 10 meetings	10 meetings were held after appointment on March 22, 2019
	Minoru Furuta	Attended 10 out of 10 meetings	10 meetings were held after appointment on March 22, 2019
	Tojiro Aoyama	Attended 13 out of 13 meetings	
	Tsuyoshi Nomura	Attended 13 out of 13 meetings	
	Makoto Nakajima	Attended 13 out of 13 meetings	
	Takashi Mitachi	Attended 13 out of 13 meetings	
Auditors	Toshio Kawayama	Attended 10 out of 10 meetings	10 meetings were held after appointment on March 22, 2019
	Sojiro Tsuchiya	Attended 13 out of 13 meetings	
	Yoshinori Kawamura	Attended 10 out of 10 meetings	10 meetings were held after appointment on March 22, 2019

Message from Executive Vice Presidents



Hiroaki Tamai

DMG MORI CO., LTD. Executive Vice President

Around 13,000 members of DMG MORI are quite diverse and full of surprises. Some have won a sports competition, volunteered for the local community, earned a degree, or impressed peers at WorldSkills competition. We praise their passion in playing and learning with an award every month.

Diversity increases productivity. In Japan, we learned from the German's working style and limited annual working hours to 2,010 hours per person in 2019. Moreover, each employee used 21.6 paid holidays in average. We will continue to integrate different values and enhance efficiency at work.

On the other hand, such a global and diverse organization often has different compliance challenges in each area. We take initiatives in both domestic and overseas compliance issues, such as security export control, IT security, and corruption (e.g. money laundering and bribery). We established a global compliance training program to raise awareness throughout the group. It allows all the DMG MORI employees to work with the same compliance standard.



Hirotake Kobayashi

DMG MORI CO., LTD. Executive Vice President

In FY2019, we marked JPY 485.8 bn. in sales revenue (-3.1% year-on-year), JPY 37.3 bn. in operating profit (+3.0% year-on-year), and JPY 18 bn. in profits attributable to owners of the parent company (-2.8% year-on-year). The revenue decreased because of the scarce demand and the weaker euro, but the profitability improved as we strictly controlled gross margin of each order. Free cash flows resulted in JPY 20.1 bn., which helped us reduce interest-bearing debt to JPY 75.5 bn. by the year-end. As of December 2019, equity ratio attributable to owners of the parent company rose by 2.6% year-on-year to 23.6%.

We expect a recovery in order intake in the second half of FY2020, but the positive impact will only show from FY2021. Therefore, we set FY2020 targets as JPY 400 bn. in sales revenue, JPY 20 bn. in operating profit, and JPY 8.5 bn. in profit attributable to owners of the parent company. In FY2019, we paid JPY 60 per share as dividend (+JPY 10 year-on-year) with the payout ratio of 43.3%. In FY2020, we plan to keep JPY 60 per share as dividend and maintain stable return to shareholders. We will continue investment for sustainable growth while reinforcing financial bases, so that we can create new value, share it with our shareholders and investors, and build a trusted relationship based on constructive discussions. Your cooperation is appreciated.

Message from External Director



Takashi Mitachi

External Director

For the first time in the past several years, we saw a downward trend in machine tools' demand in 2019. At DMG MORI, business operation leaders took prompt actions against economic fluctuations in each region and industry, and an aggressive and forward-thinking approach in cost controlling and cash management. Directors supported those initiatives and actively discussed how to balance them and two mid-term strategies: "continuous support to automation, labor saving, and digitization" and "investment to human resources and its quality to offer such support."

As for the future, the majority of economists predicts a recovery in the world's economy and capital investment in the second half of 2020. Needless to say, we should be the first to capture the upward trend and create new value from our competitive advantages. On the other hand, we also have to consider risks: geopolitical risks, COVID-19, and so forth. In such volatile circumstances, only flexible companies can survive and continuously generate value.

Internal and external directors of DMG MORI will continuously and actively discuss a wide range of topics to further reinforce cash generating power and capture the market changes. We are committed to satisfying and exceeding expectations of our shareholders.

Message from External Auditor



Sojiro Tsuchiya

External Auditor, Dr.Eng.

With the U.S.-China trade war and other negative factors, the downward trend in the world's economy became apparent in 2019. The machine tool industry is particularly susceptible to such economic fluctuations.

DMG MORI's order intake volume shrunk, too, although the impact was less significant than to our competitors. Machine tools are complex and sophisticated devices, and the lead time from order intake, production to delivery is long. Therefore, the ample amount of orders in 2018 stabilized the production and sales volume in 2019, but we cannot expect the same in 2020. We might be less busy with fewer machines to make, but we have something else to do under such a stagnant economy. When struggling with the slow market, a company starts to see hidden and underlying issues. It could be a great opportunity; with more free time at hand, we can change and improve ourselves.

We must review our routines and increase the efficiency and productivity. It should be a group-wide effort where Production, R&D, SSEP and administrative sectors closely collaborate. Despite challenges we might face this year, I would like to make 2020 a year of consistency and renovation with a view into a bright future. I will do my best to support it and maximize shareholders' benefits.

Basic approaches to Compliance

DMG MORI defined criteria for specific actions of Directors, Operating Officers and other employees by stipulating rules in Mission Statement, Employee Handbook, Compliance Handbook, Export Control Program, Information Security Policy, and Management System for environment, labor safety and health and quality, and secures compliance by accordingly implementing them. We also organize compliance trainings for new employees and other staffs, depending on their level, as well as associated e-learning and other learning opportunities. In addition, we have established an international whistleblowing service in accordance with the compliance hotline rules. In case of sexual harassment and other problems where special considerations to the privacy of employees are needed, an external third-party institution takes the lead.

1. Comply with GDPR and CCPA

As a company with major bases in Europe, we promptly adjusted ourselves to comply with the GDPR (General Data Protection Regulation) after the enforcement in May 2018. CO concluded Standard Contractual Clauses (SCC) for data protection with the European group companies and assigned a person in charge of data security in each company, in order to establish a sound management system for customers' and employees' personal information. We are currently preparing for the California Consumer Privacy Act (CCPA) in California, the United States.

2. Establish the Compliance Promotion Team

In DMG MORI, Auditors and the Internal Auditing Office secure compliance of each group company. In 2018, we additionally established the Compliance Promotion Team as a group-wide approach. Compliance Officers assigned by region instruct and oversee Local Compliance Officers of each company, based on the unified rules across the group. The target is to improve our compliance literacy and proactively share the best practices within the group. In 2019, we conducted compliance education in each region and worked on building a global education system.

3. Start of Risk Assessment

Together with the organization of the Compliance Promotion Team, we also started compliance risk assessment of group companies.

We apply same indicators and evaluation tools to objectively assess the compliance system of each company and utilize the result to improve our trainings and organizations.

BCP (Business Continuity Plan)

Since the Great East Japan Earthquake in March 2011, DMG MORI has continuously updated the manuals for disaster management. The Disaster Management Plan assigns disaster management staff by department and by affected area in all the group companies. As part of disaster prevention activities, the company checks the inventory of disaster prevention goods and tests the connectivity of satellite phones, in addition to the regular updates of the manuals. Our 14 global production bases help us promptly react to our customers' needs, and also sustain our business in case of disaster.

Information Security

We compiled the Basic Policy for Information Security in 2015 and established the Information Security Committee in 2016 to strengthen the information control system. In addition to the Information Security Committee which manages information assets, DMG MORI launched the Control Security Committee to ensure safety in machine tool operation and IT environment at customers' sites. In collaboration with CNC manufacturers and suppliers for machine tool safety, and external security consultants for IT security, we are fully committed to protecting digitized factories.

Basic approaches to Export Control

DMG MORI's basic approach is to follow Foreign Exchange and Foreign Trade Act (hereinafter referred to as "Foreign Exchange Act") when exporting goods, supplying technologies, and conducting agency transactions. Our Export Control Committee consists of all the board members and is chaired by President & Representative Director. The Committee stipulates and amends internal rules, such as the "DMG MORI Export Control Program", and appoints persons in charge of operation. Export Control Office is responsible for operation of the program. It evaluates customers and makes applications for export licenses to the Ministry of Economy, Trade and Industry (hereinafter referred to as "METI"). In DMG MORI's export control system, for every item to be exported or technology to be supplied overseas an approval by Export Control Office must be obtained. In addition, Human Resources Department makes training plans on export control and the Internal Audit Department audits the operation.

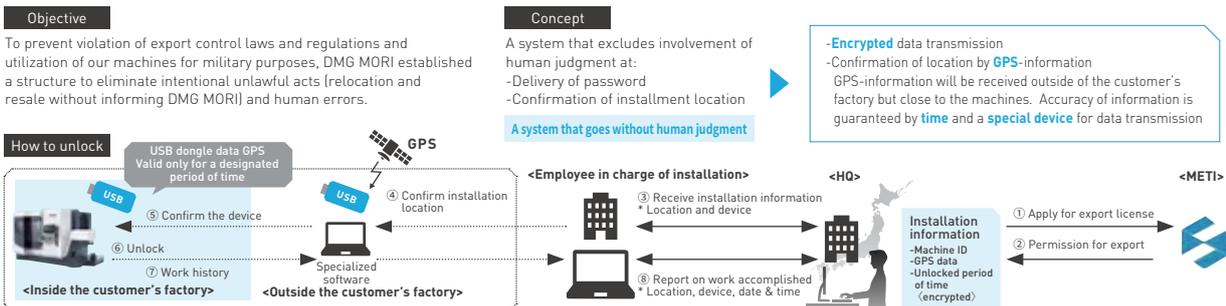
1. Pre-export assessment

Prior to export, we need to confirm whether the companies or organizations that are going to purchase our products and services plan to utilize DMG MORI's machines only for civil purposes and not for military purpose that will pose a threat to international peace and stability. We first check the content of business of those customers and whether the desired products are subject to the Foreign Exchange Act or other export control regulations. After receiving orders, we perform thorough background investigations based on documents and visits. Thereafter, we apply for export license to METI. After receiving the license, we conduct a final check before shipment of the ordered machines. Recently, we started applying the same procedures to machines produced in the United States, Europe (Germany, etc.), China and India as well, in addition to those produced in Japan, to ensure compliance with both local and Japanese laws. If we have any doubt during the above-mentioned process that our products may be used for military purposes, the head of the Export Control Office will be informed and the Export Control Committee will make the final decision.

2. Post-export procedures

Continuous monitoring and control after export is important to guarantee proper usage of our machines. DMG MORI equips all of its machines with GPS-based devices for detection of machine relocation to prevent military usage by third parties through unauthorized sale or after bankruptcy. To unlock the machines, authorized employees responsible for export control must register GPS information of the expected installation location and the name of an employee who will visit the site. When our employees visits the location, they must obtain the GPS information once again on-site and confirm that both data are identical. In case of unauthorized relocation, the machine remains deactivated.

Outline of GPS-based relocation detection devices



Basic approach to Internal Control

DMG MORI CO., LTD. resolved “Internal Control Guidelines” at the Board of Directors’ meeting and accordingly implements the policy.

1. Auditor Audit

Auditors witness resolutions and require reports at key meetings including the Board of Directors’ meeting, Management Committee, and Operating Officers’ meeting, and if necessary request additional explanations from Directors, Operating Officers and other employees.

2. Internal audit

DMG MORI has a dedicated team for internal audits, the Internal Auditing Department which directly reports to the President. It oversees optimized and efficient business operation of the entire group. Auditors also monitor the risk management of subsidiaries; reports from subsidiaries are shared with Auditors upon audits or audit liaison meetings with auditors of subsidiaries.

3. Subsidiary Management

One or more DMG MORI’s Directors are appointed as Directors or Auditors of subsidiaries and attend the Board of Directors’ and other key meetings, in order to understand and handle appropriately the updated status from the other Directors or Operating Officers of each subsidiary.

4. J-SOX

DMG MORI has established a J-SOX section under the Internal Auditing Department in October 2005, preceding the governmental regulations for the new internal control report system over financial reporting in accordance with the Financial Instruments and Exchange act (J-SOX).

Since then, we have successfully developed and operated an internal control system in line with the legal framework, inside and outside the group. Our internal audit section operates J-SOX with its AG counterparty. Together with the evaluation results of AG, we are audited by our Financial Auditors and prepare a joint report on the internal control system of the entire DMG MORI group.

FINANCIAL SECTION

Financial Summary

Key financial figures

FY	Million Yen			
	2016	2017	2018	2019
Profit or loss				
Sales revenues	376,631	429,664	501,248	485,778
Operating income	1,961	29,391	36,261	37,339
(Ratio of operating income to sales revenues)	0.5%	6.8%	7.2%	7.7%
Earnings before income taxes	-1,064	24,803	31,275	31,451
Net income	-5,749	15,676	19,374	18,861
Income attributable to owners of the parent	-7,826	15,263	18,517	17,995
Cash flows				
Cash flows from operating activities (A)	18,237	31,423	49,398	43,647
Cash flows from investment activities (B)	-10,008	-1,387	-19,020	-23,546
Free cash flows (A+B)	8,229	30,036	30,378	20,101
Equity				
Equity attributable to owners of the parent	100,449	107,617	111,113	124,006
Total assets	558,222	567,411	528,423	524,606
Ratio of equity attributable to owners of the parent ^{*1}	18.0%	19.0%	21.0%	23.6%
Per-share information				
Equity per share attributable to owners of the parent (Yen) ^{*2}	836.25	886.73	910.25	1,008.36
Dividends per share (Yen)	26	40	50	60
Other management indicators				
Ratio of income attributable to owners of the parent (ROE) ^{*3}	-6.1%	14.7%	16.9%	15.3%
Return on Assets (ROA) ^{*4}	0.3%	5.2%	6.6%	7.1%

*1 Equivalent to shareholders' equity ratio. Divided the equity attributable to owners of the parent company by total assets.

*2 Equity attributable to owners of the parent company per share includes hybrid capital.

*3 Equivalent to Return on Equity. Divided the income or loss attributable to owners of the parent company by the average of equity attributable to owners of the parent company at the beginning of the period (end of the previous period) and the end of the period.

*4 ROA is calculated by dividing operating income by the average of total assets as of the beginning of the period (end of the previous period) and as of the end of the period.

Changes in lease accounting standard

Effective January 1, 2019, the Group has implemented IFRS 16 "Leases." Operating leases and real-estate rents weren't previously presented on Statement of Fiscal Position, whereas they are now presented on under the new regulation.

The actual impact of the changes on total assets amounted to 16.7 billion JPY, which was recognized as right-of-use assets. As of the beginning of FY2019, right-of-use assets were 19.3 billion JPY, together with the existing financial lease assets of 2.6 billion JPY.

As the impact on the profit or loss, depreciation and interest payment increased by 5.4 billion JPY and 0.3 billion JPY, respectively, and rent payment decreased by 5.7 billion JPY.

	Million EUR			
EUR/JPY	120.3	126.7	130.4	122.1
FY	2016	2017	2018	2019
Profit and loss				
Sales revenues	3,130	3,392	3,843	3,979
Operating income	16	232	278	306
(Ratio of operating income to sales revenues)	0.5%	6.8%	7.2%	7.7%
Earnings before income taxes	-9	196	240	258
Net income	-48	124	149	154
Income attributable to owners of the parent	-65	120	142	147
Cash flows				
Cash flows from operating activities (A)	152	248	379	358
Cash flows from investing activities (B)	-83	-11	-146	-193
Free cash flows (A+B)	68	237	233	165
Equity				
Equity attributable to owners of the parent	835	850	852	1,016
Total assets	4,639	4,479	4,051	4,297
Ratio of equity attributable to owners of the parent ^{*1}	18.0%	19.0%	21.0%	23.6%
Per-share information				
Equity per share attributable to owners of the parent (EUR) ^{*2}	6.9	7.0	7.0	8.3
Dividends per share (EUR)	0.2	0.3	0.4	0.5
Other management indicators				
Ratio of income attributable to owners of the parent (ROE) ^{*3}	—	—	—	—
Return on Assets (ROA) ^{*4}	—	—	—	—

^{*1} Equivalent to shareholders' equity ratio. Divided the equity attributable to owners of the parent company by total assets.

^{*2} Equity attributable to owners of the parent company per share includes hybrid capital.

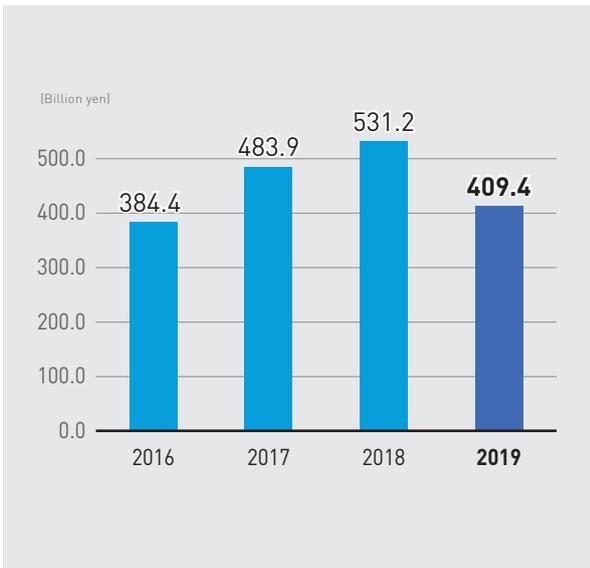
^{*3} Equivalent to Return on Equity. Divided the income or loss attributable to owners of the parent company by the average of equity attributable to owners of the parent company at the beginning of the period (end of the previous period) and the end of the period.

^{*4} ROA is calculated by dividing operating income by the average of total assets as of the beginning of the period (end of the previous period) and as of the end of the period.

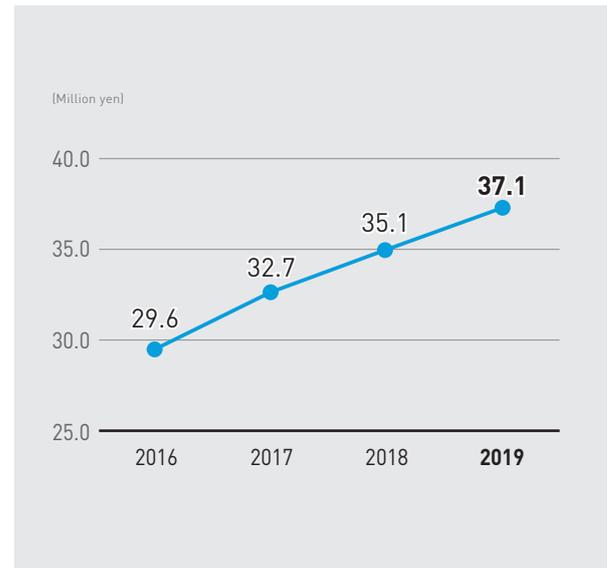
Financial Summary

Financial summary

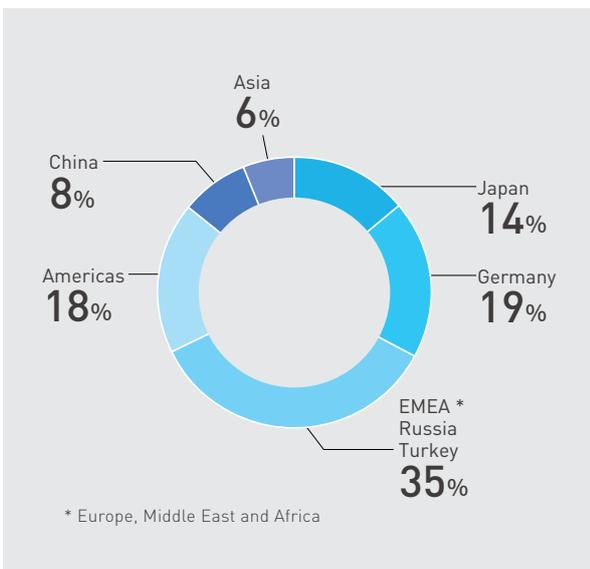
Company-wide order intake



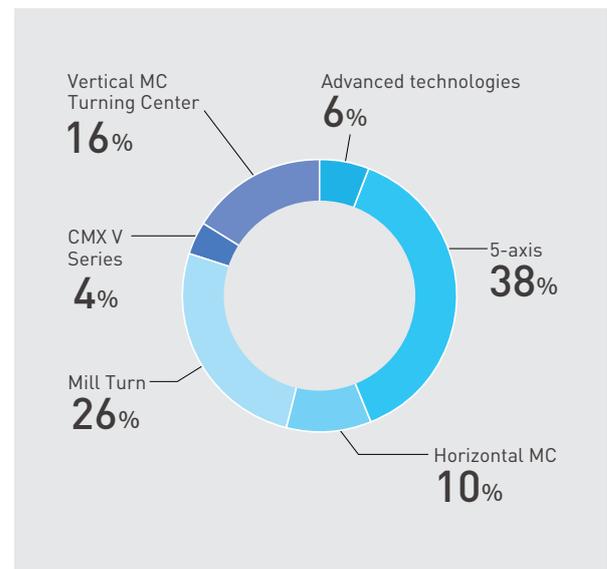
Average order price per unit



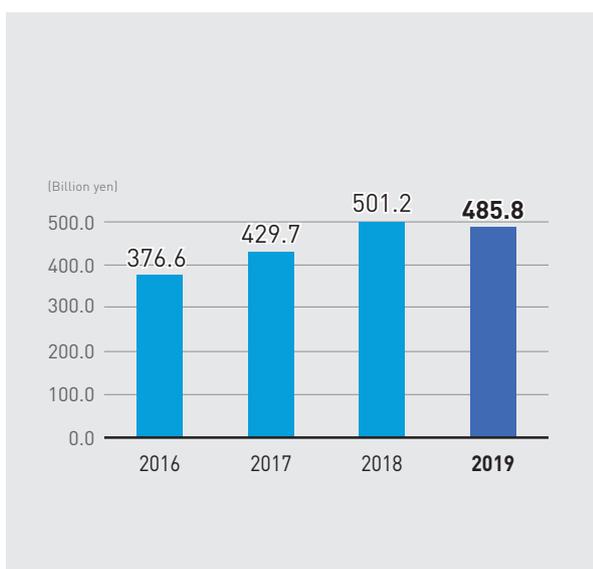
Order composition by region



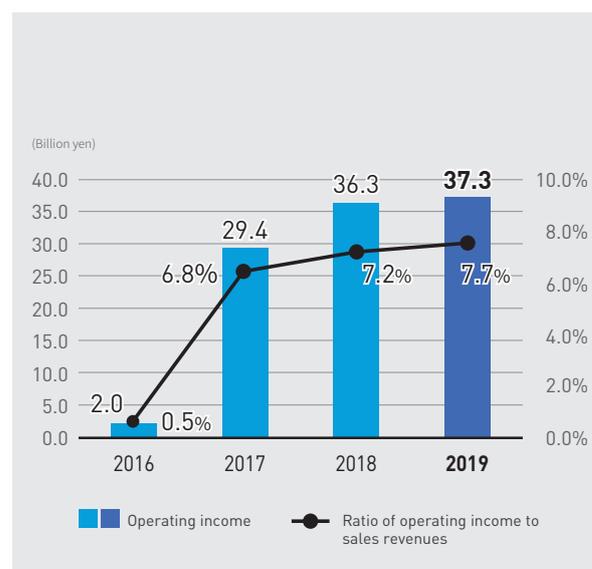
Order composition by product type



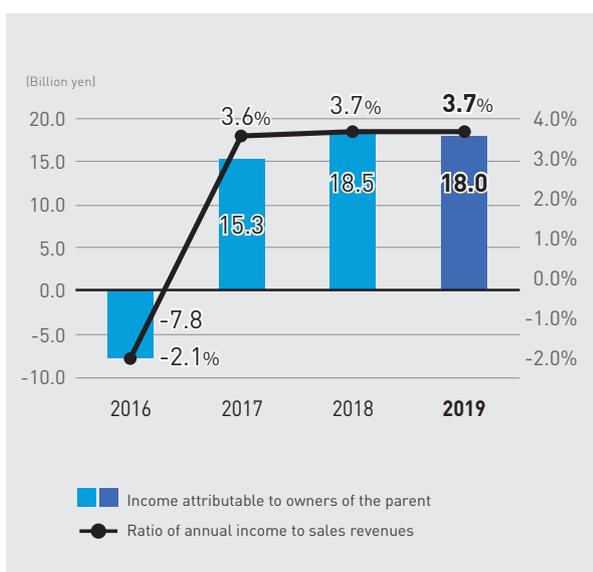
█ Sales revenues



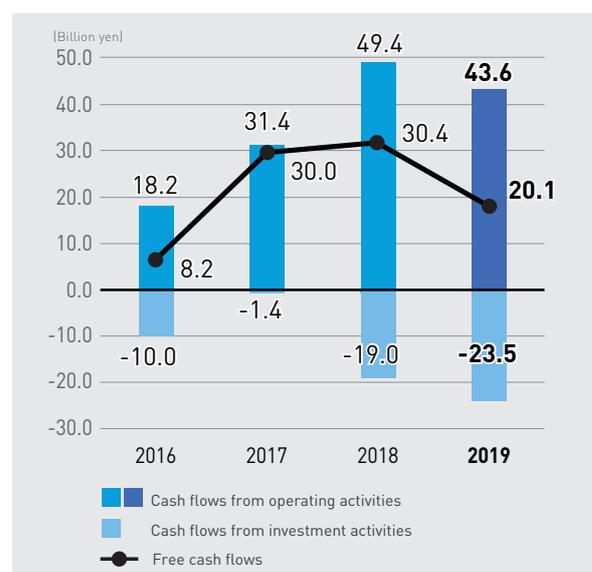
█ Operating income
Ratio of operating income to sales revenues



█ Income attributable to owners of the parent
Ratio of annual income to sales revenues



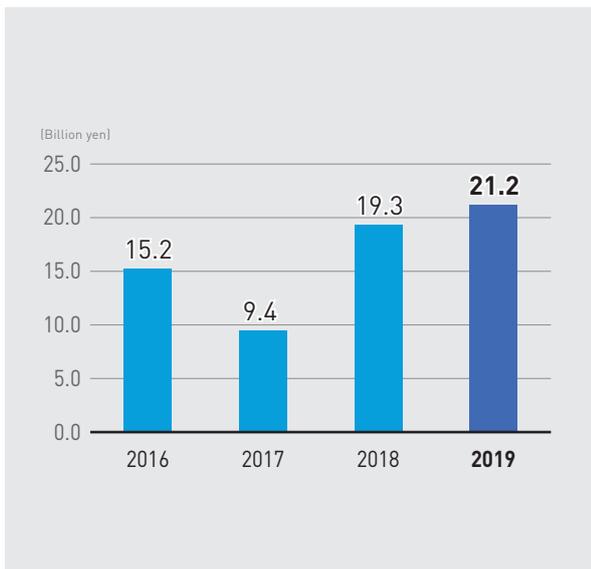
█ Free cash flows



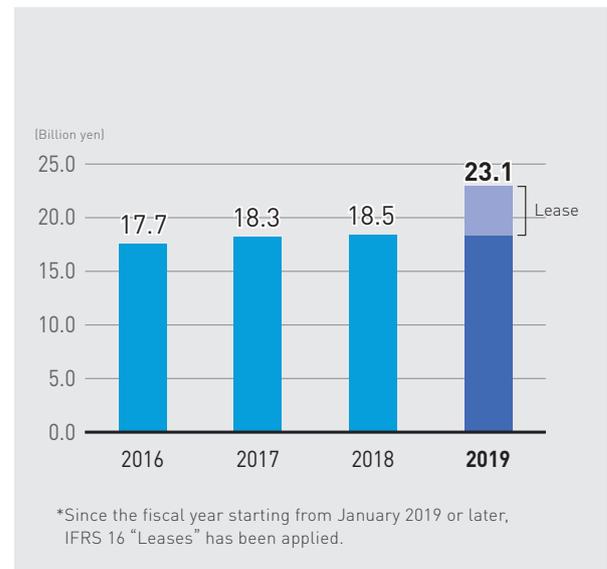
Financial Summary

Financial summary

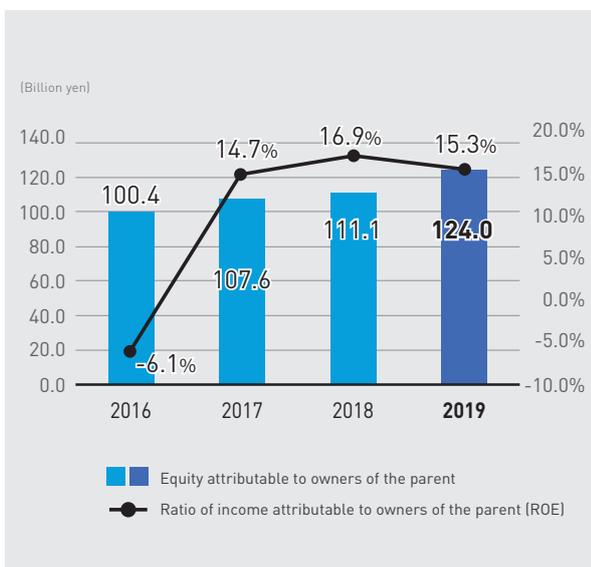
Capital expenditure



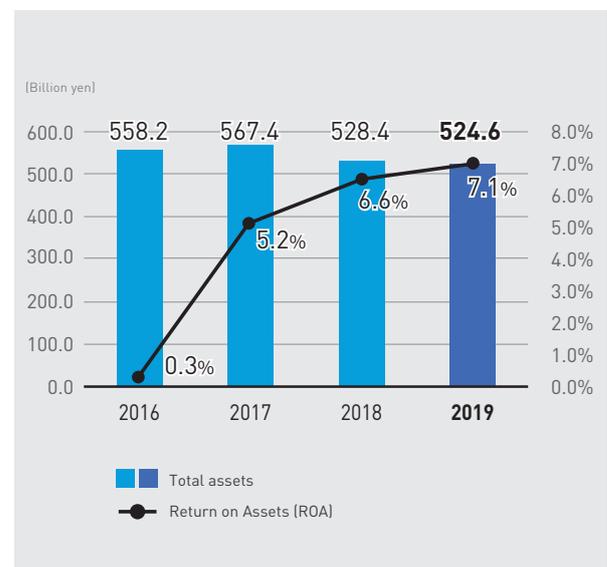
Depreciation



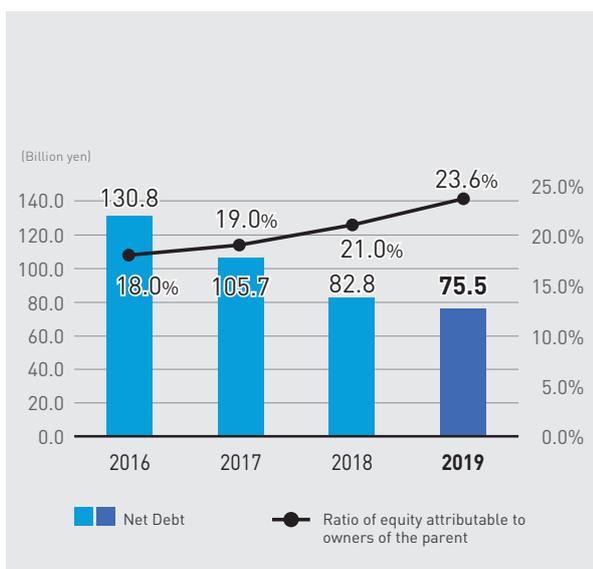
Equity attributable to owners of the parent Ratio of income attributable to owners of the parent (ROE)



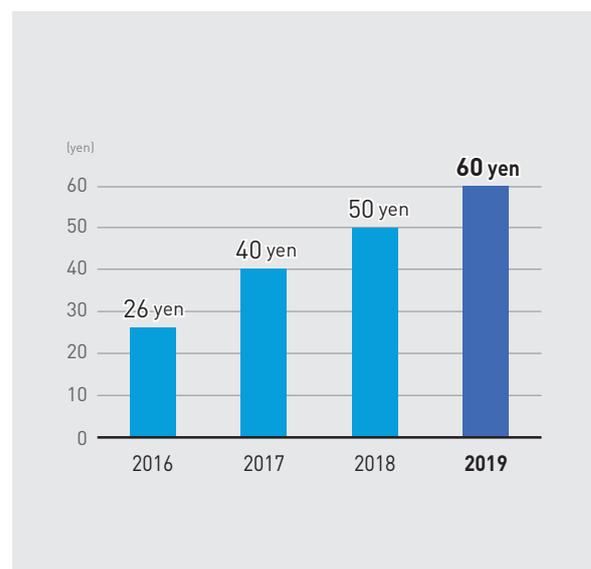
Total assets Return on Assets (ROA)



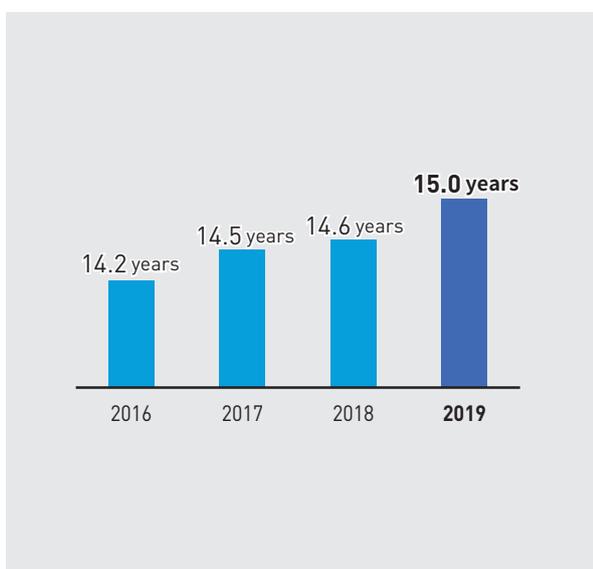
Net Debt
Ratio of equity attributable to owners of the parent



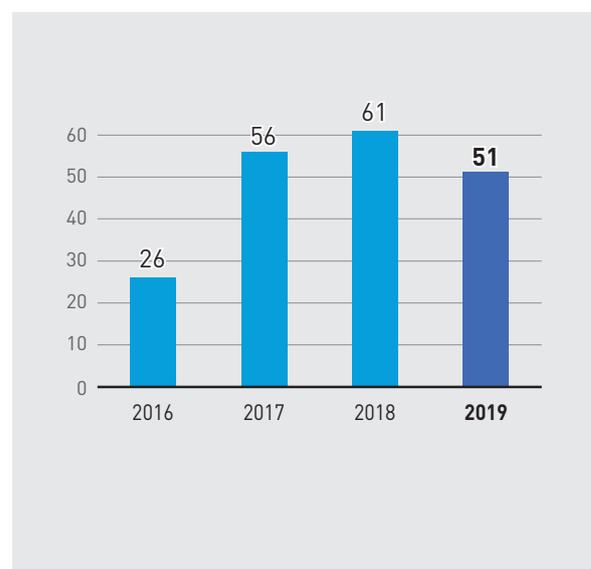
Dividend per share



Employee average years of service (domestic offices)



Number of employees taking childcare leave (domestic offices / full-time employees)



Financial Summary

Consolidated statements of financial position

	Million Yen		Million EUR	
	Previous fiscal year December 31, 2018	Current fiscal year December 31, 2019	Previous fiscal year December 31, 2018	Current fiscal year December 31, 2019
	Exchange rate (CR) 122.53 (*)			
Assets				
Current assets				
Cash and cash equivalents	27,368	27,695	223	226
Trade and other receivables	69,441	55,314	567	451
Other financial assets	6,836	5,464	56	45
Inventories	130,726	120,862	1,067	986
Other current assets	9,656	9,072	79	74
Total current assets	244,029	218,409	1,992	1,782
Non-current assets				
Property, plant and equipment	128,686	130,943	1,050	1,069
Right-of-use assets	—	18,095	—	148
Goodwill	68,854	66,516	562	543
Other intangible assets	65,399	62,773	534	512
Other financial assets	8,509	12,871	69	105
Investments in associates and joint ventures	3,331	5,751	27	47
Deferred tax assets	4,317	4,074	35	33
Other non-current assets	5,293	5,170	43	42
Total non-current assets	284,393	306,196	2,321	2,499
Total assets	528,423	524,606	4,313	4,281

* Euro amount is converted from yen at the closing rate of Dec. 2019 (122.53) for both previous and current fiscal year.

	Exchange rate (CR) 122.53			
	Million Yen		Million EUR	
	Previous fiscal year December 31, 2018	Current fiscal year December 31, 2019	Previous fiscal year December 31, 2018	Current fiscal year December 31, 2019
Liabilities and equity				
Liabilities				
Current liabilities				
Trade and other payables	56,833	54,851	464	448
Interest-bearing bonds and borrowings	54,725	35,157	447	287
Contract liabilities	61,695	37,517	504	306
Other financial liabilities	95,982	98,505	783	804
Accrued income taxes	9,147	7,388	75	60
Provisions	32,256	34,738	263	284
Other current liabilities	3,896	4,393	32	36
Total current liabilities	314,537	272,553	2,567	2,224
Non-current liabilities				
Interest-bearing bonds and borrowings	62,289	73,539	508	600
Other financial liabilities	19,158	32,566	156	266
Net employee defined benefit liabilities	5,159	5,594	42	46
Provisions	5,633	5,219	46	43
Deferred tax liabilities	6,133	6,203	50	51
Other non-current liabilities	1,345	1,123	11	9
Total non-current liabilities	99,718	124,246	814	1,014
Total liabilities	414,256	396,799	3,381	3,238
Equity				
Subscribed capital	51,115	51,115	417	417
Capital surplus	—	—	—	—
Hybrid capital	49,505	49,505	404	404
Treasury shares	-8,571	-6,319	-70	-52
Retained earnings	37,498	46,399	306	379
Other components of equity	-18,435	-16,695	-150	-136
Equity attributable to owners of the parent	111,113	124,006	907	1,012
Non-controlling interests	3,053	3,800	25	31
Total equity	114,166	127,807	932	1,043
Total liabilities and equity	528,423	524,606	4,313	4,281

Consolidated statement of comprehensive income

	Million Yen		Million EUR	
	Previous fiscal year January 1, 2018 to December 31, 2018	Current fiscal year January 1, 2019 to December 31, 2019	Previous fiscal year January 1, 2018 to December 31, 2018	Current fiscal year January 1, 2019 to December 31, 2019
	Exchange rate (CR) 122.53			
Net income	19,374	18,861	158	154
Other comprehensive income				
Items that will not be reclassified subsequently to profit or loss				
Remeasurements of defined benefit plans	426	-521	3	-4
Change in fair value measurements of financial assets at fair value through other comprehensive income	-782	1,108	-6	9
Share of other comprehensive income of associates accounted for using equity method	-21	5	0	0
Subtotal	-377	591	-3	5
Items that may be reclassified subsequently to profit or loss				
Exchange differences on translation of foreign operations	-8,404	773	-69	6
Effective portion of changes in fair value of cash flow hedge	157	55	1	0
Subtotal	-8,246	829	-67	7
Total other comprehensive income	-8,624	1,421	-70	12
Comprehensive income	10,750	20,283	88	166
Comprehensive income attributable to:				
Owners of the parent	9,904	19,411	81	158
Non-controlling interests	845	871	7	7
Comprehensive income	10,750	20,283	88	166

Financial Summary

Consolidated statement of changes in equity

	Million Yen								Exchange rate (CR) 122.53	
	Equity attributable to owners of the parent								Million EUR	
	Subscribed capital	Capital surplus	Hybrid capital	Treasury shares	Retained earnings	Other components of equity	Total	Non-controlling interests	Total equity	Total equity
As of January 1, 2018	51,115	—	49,505	-9,726	26,227	-9,504	107,617	2,402	110,019	898
Impact of changes in accounting policies					-208		-208		-208	-2
As of January 1, 2018 (revised)	51,115	—	49,505	-9,726	26,018	-9,504	107,408	2,402	109,811	896
Total comprehensive income										
Net income					18,517		18,517	857	19,374	158
Other comprehensive income						-8,612	-8,612	-11	-8,624	-70
Total comprehensive income	—	—	—	—	18,517	-8,612	9,904	845	10,750	88
Transaction with owners of the parent										
Payments to owners of hybrid capital					-1,072		-1,072		-1,072	-9
Treasury shares acquisition				0			0		0	0
Treasury shares disposition		-254		1,156		-100	801		801	7
Cash dividends					-6,050		-6,050	-159	-6,210	-51
Transfer from retained earnings to capital surplus		340			-340		—		—	—
Share-based payments		4				209	213		213	2
Changes due to business combinations							—	250	250	2
Changes in equity from transaction with non-controlling interests							—		—	—
Changes due to capital increase of consolidated subsidiaries							—		—	—
Transfer from other components of equity to retained earnings					426	-426	—		—	—
Total transactions with owners of the parent	—	90	—	1,155	-7,037	-318	-6,109	90	-6,018	-49
Acquisition of non-controlling interests		-90					-90	-285	-375	-3
Changes in ownership interests in subsidiaries and others	—	-90	—	—	—	—	-90	-285	-375	-3
As of December 31, 2018	51,115	—	49,505	-8,571	37,498	-18,435	111,113	3,053	114,166	932
As of the beginning of the period	51,115	—	49,505	-8,571	37,498	-18,435	111,113	3,053	114,166	932
Impact of changes in accounting policies					-347		-347		-347	-3
As of January 1, 2019 (revised)	51,115	—	49,505	-8,571	37,151	-18,435	110,765	3,053	113,818	929
Total comprehensive income										
Net income					17,995		17,995	866	18,861	154
Other comprehensive income						1,416	1,416	4	1,421	12
Total comprehensive income	—	—	—	—	17,995	1,416	19,411	871	20,283	166
Transaction with owners of the parent										
Payments to owners of hybrid capital					-1,076		-1,076		-1,076	-9
Treasury shares acquisition				-1			-1		-1	0
Treasury shares disposition		-586		2,253		-195	1,471		1,471	12
Cash dividends					-6,705		-6,705	-132	-6,837	-56
Transfer from retained earnings to capital surplus		581			-581		—		—	—
Share-based payments		2				-2	—		—	—
Changes due to business combinations					138		138	49	188	2
Changes in equity from transaction with non-controlling interests							—	-201	-201	-2
Changes due to capital increase of consolidated subsidiaries							—	140	140	1
Transfer from other components of equity to retained earnings					-521	521	—		—	—
Total transactions with owners of the parent	—	-2	—	2,251	-8,746	323	-6,173	-143	-6,316	-52
Acquisition of non-controlling interests		2					2	19	22	0
Total changes in ownership interests in subsidiaries and others	—	2	—	—	—	—	2	19	22	0
As of December 31, 2019	51,115	—	49,505	-6,319	46,399	-16,695	124,006	3,800	127,807	1,043

Consolidated statement of cash flows

Exchange rate (CR) 122.53

	Million Yen		Million EUR	
	Previous fiscal year January 1, 2018 to December 31, 2018	Current fiscal year January 1, 2019 to December 31, 2019	Previous fiscal year January 1, 2018 to December 31, 2018	Current fiscal year January 1, 2019 to December 31, 2019
Cash flows from operating activities				
Earnings before income taxes	31,275	31,451	255	257
Depreciation and amortization	18,499	23,079	151	188
Loss (gain) on sales / disposal of property, plant and equipment (△: gain)	492	447	4	4
Financial income and costs (△: gain)	5,154	5,938	42	48
Share of profits of associates and joint ventures accounted for using equity method (△: gain)	△167	△50	△1	△0
Other non-cash transactions (△: gain)	△3,751	330	△31	3
Changes in inventories (△: increase)	△12,958	7,312	△106	60
Changes in trade and other receivables (△: increase)	△11,782	12,600	△96	103
Changes in trade and other payables (△: decrease)	10,517	△1,897	86	△15
Changes in contract liabilities (△: decrease)	18,828	△22,189	154	△181
Changes in provisions (△: decrease)	5,873	3,993	48	33
Others	△770	295	△6	2
(Subtotal)	61,207	61,311	500	500
Interest received	342	314	3	3
Dividends received	119	107	1	1
Interest paid	△5,002	△4,749	△41	△39
Income tax paid	△7,269	△13,337	△59	△109
Net cash flows from operating activities	49,398	43,647	403	356
Cash flows from investment activities				
Purchases of property, plant and equipment	△13,732	△14,564	△112	△119
Proceeds from sales of property, plant and equipment	1,521	3,888	12	32
Purchases of intangible assets	△5,545	△6,612	△45	△54
Acquisition of subsidiaries, net of cash acquired	△199	△395	△2	△3
Acquisition of associates, net of cash acquired	△1,103	△2,538	△9	△21
Purchases of financial instruments	△64	△3,462	△1	△28
Proceeds from sales of financial instruments	50	—	0	—
Others	53	138	0	1
Net cash flows from investment activities	△19,020	△23,546	△155	△192
Cash flows from financing activities				
Net increase (decrease) in short-term borrowings (△: decrease)	12,240	561	100	5
Proceeds from long-term borrowings	4,885	19,949	40	163
Payments for long-term borrowings	△75,404	△17,410	△615	△142
Proceeds from issue of bond	—	9,955	—	81
Payments for bond redemption	—	△20,000	—	△163
Payments of lease liabilities	—	△5,402	—	△44
Dividends paid	△6,044	△6,691	△49	△55
Dividends paid to non-controlling interests	△159	△131	△1	△1
Proceeds from non-controlling interests	250	—	2	—
Acquisition of non-controlling interests	△392	—	△3	—
Acquisition of treasury shares	△0	△1	—	△0
Payments for obligations for non-controlling interests	△1	△111	△0	△1
Payments to owners of hybrid capital	△1,072	△1,076	△9	△9
Others	265	1,338	2	11
Net cash flows from financing activities	△65,433	△19,019	△534	△155
Effect of exchange rate changes on cash and cash equivalents	△2,550	△752	△21	△6
Increase (decrease) in cash and cash equivalents (△: decrease)	△37,605	327	△307	3
Cash and cash equivalents at the beginning of period	64,973	27,368	530	223
Cash and cash equivalents at the end of period	27,368	27,695	223	226

Financial Summary

Basic information as of December 31, 2019

Corporate Profile

Company name	DMG MORI CO., LTD.	
Capital	51,115 million yen	
Established	October, 1948	
Registered Head Office	106, Kitakoriyama-cho, Yamato-Koriyama City, Nara 639-1160, Japan	Phone: +81-743-53-1125
Tokyo Global Headquarters	2-3-23 Shiomi, Koto-ku, Tokyo 135-0052, Japan	Phone: +81-3-6758-5900
National Head Office	2-35-16 Meieki, Nakamura-ku, Nagoya City, Aichi 450-0002, Japan	Phone: +81-52-587-1811
Business operations	Provision of total solutions consisting of machine tools (machining centers, turning centers, turn-mill machines, 5-axis machines, etc.), software (user interface, Technology Cycles, embedded software, etc.), measurement equipment, service support, applications, and engineering	
Number of employees	12,837 (consolidated)	
Website	https://www.dmgmori.co.jp/en/	

Shares

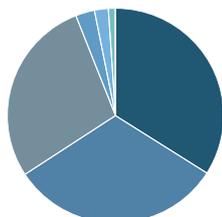
Total number of authorized shares	300,000,000
Number of shares outstanding (excluding treasury shares)	124,639,688
Units	100
Number of shareholders	35,039

Top share holders

Name	Position (1,000 shares)	Shareholding ratio (%)
The Master Trust Bank of Japan, Ltd. (trust account)	6,708	5.38
Japan Trustee Services Bank, Ltd. (trust account)	6,076	4.88
THE BANK OF NEW YORK MELLON 140051 (standing proxy: Mizuho Bank, Ltd.)	4,830	3.88
Masahiko Mori	3,591	2.88
Japan Trustee Services Bank, Ltd. (Mori Manufacturing Research and Technology Foundation account)	3,500	2.81
DMG MORI Employee Shareholders Association	3,225	2.59
THE BANK OF NEW YORK 133972 (standing proxy: Mizuho Bank, Ltd.)	3,026	2.43
The Nomura Trust and Banking Co., Ltd. (investment trust account)	2,690	2.16
Japan Trustee Services Bank, Ltd. (trust account 5)	2,536	2.03
CDSIDAC - MERIAN GLOBAL INVESTORS SERIES PLC (standing proxy: Citibank, N.A.)	2,339	1.88

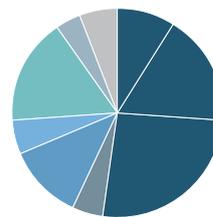
*The shareholding ratio is calculated excluding the treasury stock. The stock of 1,825,400 shares owned by The Nomura Trust and Banking Co., Ltd. (DMG MORI Co., Ltd. Employee Stock Ownership Plan trust account) is not included in the treasury stock.

Shareholder composition



	Number of shares (1,000 shares)	Number of shareholders
Foreign corporate bodies (other than individuals)	42,805	333
Individuals / Others	40,041	34,296
Financial institutions (including securities investment trust)	35,581 (26,720)	65
Other corporate bodies	3,574	264
Financial instrumentals firm	2,615	42
Treasury shares	1,313	1
Foreign individual investors	20	38

Distribution by position



	Number of shares (1,000 shares)	Number of shareholders
1,000,000 shares or more	62,991	28
500,000 shares or more	11,973	18
100,000 shares or more	17,904	78
50,000 shares or more	3,443	49
10,000 shares or more	7,955	434
5,000 shares or more	3,665	596
1,000 shares or more	11,436	6,866
500 shares or more	2,716	4,559
Up to 500 shares	3,867	22,411

Glossary

Below are additional explanations to some selected vocabulary in this annual report.

Descriptions in the annual report	Explanations
DMG MORI DMG MORI Group	The entire DMG MORI Group consisting of DMG MORI CO., LTD., DMG MORI AKTIENGESELLSCHAFT, and other group companies
DMG MORI CO CO	DMG MORI CO., LTD.
DMG MORI AG AG	DMG MORI AKTIENGESELLSCHAFT

Financial Calendar

DMG MORI CO., LTD.		DMG MORI AKTIENGESELLSCHAFT	
24 March 2020	72nd Annual General Meeting of Shareholders	28 April 2020	Release for the 1st Quarter 2020
28 May 2020	Release for the 1st Quarter 2020	15 May 2020	118th Annual General Meeting of Shareholders
6 August 2020	Release for the 2nd Quarter 2020 (plan)	4 August 2020	Release for the 2nd Quarter 2020
6 November 2020	Release for the 3rd Quarter 2020 (plan)	29 October 2020	Release for the 3rd Quarter 2020

Reporting Term

January 2019 – December 2019

Some contents include subjects that occurred outside of this term.

Disclaimer

This annual report contains targets, plans, etc. concerning the future of DMG MORI. All predictions concerning the future are judgments and assumptions based on information available to DMG MORI at the time of writing. There is a possibility that the actual future results may differ significantly from these forecasts, and described plans may not be implemented. There are many factors which contain elements of uncertainty or the possibility of fluctuation for a variety of reasons.

FIRST QUALITY

SERVICE EXCELLENCE

EMPLOYEES

SUSTAINABILITY

GLOBE - GLOBAL ONE BUSINESS EXCELLENCE

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