

SUSTAINABILITY REPORT 2019



FA&ROBOT&ROBOMACHINE
FANUC

Editorial Policy

Basic Approach

This Sustainability Report 2019 consolidates the existing Environmental Report and the ESG DATA BOOK, to totally describe FANUC's approach to E (Environment), S (Society), and G (Governance), which, we believe, form integral in our pursuit of sustainable business and society.

The data mainly concerns the year ended March 31, 2019.

In order to disclose information in a sincere and transparent manner, we have posted our basic policies for our actions, various measures, and other contents in accordance with the disclosure requirements mainly under the GRI Standards.

What This Report Covers (Boundary of Reporting)

Period	This report mainly focuses on the year ended March 31, 2019 (April 1, 2018 to March 31, 2019), while also describing our activities in the year ended March 31, 2020, past history, and future prospects and plans.
Organization	FANUC Group (Organizations covered in the data book are listed individually.)
Reporting cycle	Published every year as an annual report
Date Published	February 2020 (Next scheduled issue: September 2020)

Guidelines Referenced

GRI Standards (Global Reporting Initiative)

Environmental Reporting Guidelines (2012 edition / 2018 edition) (Ministry of the Environment)

Forward-looking statements

Statements contained in this report that relate to future activities, business performance, events or conditions of FANUC are "forward-looking statements" Such forward-looking statements are based on judgments made by FANUC's management relying on information available at the time of the publication of this report and a major part is derived from assumptions. As such, these forward-looking statements are subject to various risks and uncertainties, and actual business results may vary substantially from the forecasts expressed or implied in forward-looking statements. Accordingly, caution should be exercised in placing undue reliance on these forward-looking statements. FANUC disclaims any obligation to revise statements on the future forward-looking statements in light of new information, future events or other findings.

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Message from the President & CEO

Kenji Yamaguchi
President & CEO

I would like to thank you for your continued support and cooperation towards FANUC.

We have decided to publish this Sustainability Report, which consolidates the Environmental Report and the ESG DATA BOOK.

Our aim is to actively respond to the interest in the sustainable growth of humanity, focusing on the Sustainable Development Goals recently adopted by the United Nations.

Since its foundation, FANUC has continued to grow, owing to your support. As we pursue further growth in the future, sustainable development will be expected from us. As such, we consider it necessary to reflect back on our basic principles of “Strict Preciseness” and “Transparency”, and have the opportunity to assess ourselves.

“Strict Preciseness” means having no oversights, while “Transparency”, means that important information, including negative information, is reported immediately.

FANUC has engaged in sustainable development in order to promote automation and robotization in our customers’ factories, as well as minimizing downtime, by improving the reliability and productivity of our products, while decreasing energy consumption. I believe that the significance of the publication of this Sustainability Report is noteworthy, as it allows us to look back on and organize our efforts, and make them even more “transparent”.

FANUC intends to continue sustainable development based on its principles of “Strict Preciseness” and “Transparency”, not only to continuously improve its business performance, but also to demonstrate strong awareness of its responsibilities as a member of society.

Nothing would make me happier than for all of you to gain a deeper understanding of FANUC through this Sustainability Report.

Basic Principles

“Genmitsu” (Strict Preciseness)

“Strict Preciseness” and “Transparency” are the basic principles of FANUC.

Strict Preciseness

A company will last forever and be sound with strict preciseness.

“Tomei” (Transparency)

Transparency

The corruption of an organization and downfall of a company start from a lack of transparency.

The Three Philosophies



The three businesses of FA, ROBOT and ROBOMACHINE are unified with SERVICE as “one FANUC”, to provide innovation and reassurance to manufacturing sites around the world.

Reliable
Predictable
Easy to Repair

FANUC aims to minimize downtime in all factories all over the world.

Service First 

Conforming to the spirit of “Service First”, FANUC provides lifetime maintenance to its products for as long as they are used by customers, through more than 260 service locations supporting 108 countries throughout the world.

Materiality

Materiality	Risks	Opportunities
Maintain and improve competitiveness	<ul style="list-style-type: none"> ● The emergence of competitive products utilizing new technologies causes our products to lose their core competence. ● Our factory comes to an almost complete stop, if a large-scale disaster happens in the area where the factory is located. 	<ul style="list-style-type: none"> ● We can maintain our superiority by developing competitive products, enhancing our services, and providing our customers with attractive products. ● Creation of new markets through the use of new technologies also introduces new business opportunities for FANUC to expand its business domain and grow. ● We have nearly finished establishing multiple production sites for our CNC (computer numerical control) systems and robots, so that we can continue to serve our customers, even in the event of a large-scale disaster.
Response to environmental issues See pages 39 to 40 for climate-related risks and opportunities.	<ul style="list-style-type: none"> ● Stricter environmental regulations on resource conservation led by Europe, such as reducing greenhouse gas emissions and managing chemical substance, may lead to increased costs. ● The transition from internal combustion engines to EVs powered by electric motors, driven by measures taken by the automobile industry to combat climate change, may have a major effect on the market environment for our main products in the FA business. 	<ul style="list-style-type: none"> ● The concept of lifetime maintenance, which embodies our commitment to continue providing maintenance as long as our customers continue to use our products, as well as providing highly dependable, high quality products that are “Reliable, Predictable, Easy to Repair” and minimizing downtime of our customers’ factories by putting “service first”, has helped to reduce waste for our customers around the world. ● Leading the development of energy-saving products and products high in energy efficiency will provide opportunities to expand sales of our products in developed markets such as Europe. The transition to EVs will broaden the range of robot applications, and create opportunities to increase product sales. The number of sensors and cameras mounted on EVs will grow, and is expected to stimulate the increase in sales of ROBOSHOTs (electric injection molding machine). Furthermore, the demand for high-precision parts used in EVs and the demand for molds for EV components are both expected to increase. This will boost the demand for machine tools in this sector, leading to a higher demand for CNCs.
Shrinking labor force population	<ul style="list-style-type: none"> ● It may become difficult to hire competent people. 	<ul style="list-style-type: none"> ● The rising need for automation in manufacturing sites also represents an opportunity to expand the industrial robot market, and will lead to the development of safe and secure work environments.
Building a governance system	<ul style="list-style-type: none"> ● There is a possibility that correct management decisions will not be made, or that decision-making will be delayed. 	<ul style="list-style-type: none"> ● Proper decision-making will be made possible by establishing a governance system under which the roles and responsibilities of the executive bodies (the management) are separated from those the monitoring bodies (the Board of Directors) .

ESG Promotion Framework

At FANUC, various committees conduct activities related to the factors of ESG, such as the environment, health and safety, and compliance, with important matters being reported to the Board of Directors.

- Board of Directors : Approval of policies, approval of medium- to long-term targets
- ISO14001 Meeting : Decisions on environmental activity plans, formulation of medium- to long-term targets
- Health and Safety Committee : Deliberations and decisions regarding basic policies and measures on health and safety
- Compliance Committee : Checking the status of whistleblowing and discussing issues

Dialogue with Stakeholders

Stakeholders	Communication method	Frequency	Content
Customers	Sales representatives	As needed	Collect and provide feedback on demands and requests to FANUC. In addition, give customers tours of factories to enhance their understanding about new products and development schemes.
	Service	As needed	More than 2,000 service and support staff members around the world provide telephone support, onsite customer support, and maintenance parts management.
	Membership website	As needed	Answer customer inquiries by email and chatbot. In addition, we enable customers to purchase maintenance parts through our membership website.
	New products open house show	Every April	Invite customers and introduce our latest products.
	Exhibitions	As needed	Exhibit at trade shows in Japan and abroad to introduce our latest products.
Employees	Labor union	At least twice a month	Hold discussions, negotiations, and exchanges of opinions through regular monthly meetings and committees, quarterly meetings, and labor-management negotiations.
	Organizational performance evaluation clinical system	Once every other year	Listen to employee opinions from the perspective of employee satisfaction, and use the PDCA cycle to discover and resolve issues.
Shareholders	General meeting of shareholders	Annually	Report on business reports, consolidated and non-consolidated financial statements, and audit results, and deliberate and make resolutions on matters to be resolved after Q&A.
	Financial results briefing	Quarterly	Hold briefings and telephone conferences on the contents of financial results and business forecasts, as well as engage in Q&A sessions.
	Individual dialogues with institutional shareholders	As needed	Explain FANUC's initiatives and governance, and exchange opinions.
	ESG disclosure	As needed	Publicize ESG activities, as needed.
Communities	Coexistence with communities	As needed	Contribute to the revitalization of the local economy through tax payments, job creation, and having business with local companies.
	FA Foundation	As needed	Award prizes to recognize research results on factory automation (FA) and industrial robot technology.
	Economic and industry associations	As needed	Participate in the planning and implementation of various initiatives by organizations.
	Public-private joint projects	As needed	Participate in various public-private joint projects and promote technical exchanges.

Coordination with External Initiatives

FANUC promotes partnerships with various organizations including public institutions and organizations in industrial and academic fields, to realize sustainable development.

Public Institutions

<p>The Consortium of Human Education for Future Robot System Integration (CHERSI)</p>	<p>FANUC participates in the Study Group on Establishing an Industry-Academia Collaborative Framework for Human Resource Development, held by the Ministry of Economy, Trade and Industry, and has signed a memorandum to establish CHERSI, which will develop human resources specialized in robotics.</p>
<p>New Energy and Industrial Technology Development Organization (NEDO)</p>	<p>FANUC participated in the Strategic Innovation Program for Energy Conservation Technologies conducted by NEDO by submitting a research plan on the development of machine tools for realizing energy saving, "R&D on Energy-Saving Machine Tools that Apply New Structural Materials", jointly with the Japan Machine Tool Builders' Association and other organizations, and the plan was adopted.</p>

Economic and Business Associations

<p>FA Foundation</p>	<p>This foundation was established for the purpose of giving awards for research achievements related to FA (factory automation) and industrial robot technology. It is operated using the interest, etc. from funds donated by FANUC at the time of its establishment, and FANUC has continued to make donations to its operating expenses ever since.</p>
<p>Japan Business Federation (KEIDANREN)</p>	<p>As a member of KEIDANREN, FANUC strives to resolve international issues and strengthen economic relations with other countries through dialogue with concerned parties, while complying with the Charter of Corporate Behavior.</p>
<p>Japan Machine Tool Builders' Association</p>	<p>The Association is a comprehensive organization related to the machine tool business, which is mainly comprised of machine tool builders in Japan. FANUC's Chairman, Dr. Yoshiharu Inaba, serves as its Vice Chairman.</p>
<p>Japan Robot Association</p>	<p>FANUC is a regular member of the Association, which is an organization that encourages research and development on robots and associated system products, and promotes the use of robot technology.</p>
<p>The Japan Society of Industrial Machinery Manufacturers</p>	<p>FANUC is a member of the Society, which is an organization that drafts and promotes measures to increase productivity and to rationalize production structure in the field of environmental equipment, plastic machinery, and other industrial machinery.</p>
<p>Optoelectronics Industry and Technology Development Association</p>	<p>FANUC regularly participates in the Multi-Technology Integrated Optical Process Study Group hosted by the Association.</p>

Academic Associations

<p>Participation in various conferences</p>	<p>FANUC participates in academic societies of relevant fields to collect the latest technical information.</p> <p>We actively participate in the Electric Discharge Machining Phenomena Basic Research Committee of the Japan Society of Electrical Machining Engineers.</p> <p>We also participate regularly in the AKL - International Laser Technology Congress at Fraunhofer ILT.</p>
<p>Exchange of opinions with universities</p>	<p>Every year, FANUC invites faculty members of several universities to its new products open house show in April, where we introduce our latest products and have the professors introduce the latest technologies, targeting technical exchange.</p>
<p>Collaboration with universities</p>	<p>FANUC collaborates with the University of Tokyo, Tokyo Institute of Technology, the University of California, Berkeley (USA), RWTH Aachen University (Germany), Frankfurt International School, Wiesbaden Campus (Germany), and other universities to conduct joint research and exchange opinions. We also provide scholarship donations to help cultivate young researchers for the future.</p>



Contributing to SDGs through Business

FA Basic products

FANUC provides basic products that enable factory automation, such as CNCs, which control the operation of machine tools with numerical information, servos, which control speed and position, and laser oscillators, which are used for welding and cutting. In product development, we improve productivity in our customers' factories with energy saving, enhanced safety, and higher performance.



ROBOT Applied products

Various tasks can be automated by applying the basic technologies of CNCs and servos to freely control robot arms. We contribute to improving work environments by releasing workers from dangerous, dirty and difficult jobs, and enhance the stability of product quality by pursuing long-hour, consistent and continuous production. In addition, we contribute to the maintenance and growth of factories around the world by compensating the shrinking labor pool, such as by developing robots that can work in collaboration with humans.



ROBOMACHINE Applied products

FANUC is developing compact machining centers, electric injection molding machines, wire-cut electric discharge machines, and ultra-precision machines that apply the basic technologies of CNCs and servos. We contribute to improving the productivity of our customers by pursuing superior machining performance, operating rates, and ease of use.



Toward a sustainable society by minimizing downtime and improving productivity in our customers' factories
 Contributing to the achievement of SDGs through our FA, ROBOT, and ROBOMACHINE businesses

The United Nations Sustainable Development Summit was held at the United Nations Headquarters in New York on September 25, 2015, with the leaders of more than 150 member states participating. At this summit, they adopted "Transforming our World: the 2030 Agenda for Sustainable Development".

The Agenda includes a declaration and goals as an action plan for humanity, the planet, and prosperity. These goals are the Sustainable Development Goals

(SDGs), which consist of 17 goals and 169 targets.

FANUC is contributing to the development of the manufacturing industry in Japan and abroad, by promoting automation and enhancing efficiency in customers' factories. We are working to solve social and environmental issues, such as by reducing CO₂ emissions through energy-saving products, and are also promoting activities to achieve the SDGs, which are goals that have been agreed upon by the international community.

Categories of Contribution



■ Support our customers' technical training at FANUC ACADEMY	4		
■ Eliminate all discrimination in support of human rights	5	10	16
■ More efficient use of energy during production, and reuse of water and effluents	6	7	13
■ Contribute to automation, robotization, and minimizing downtime in customers' factories around the world	8		
■ Achieve a high level of productivity by promoting automation and robotization in our own factories	8		
■ Realize innovation by promoting R&D	9		
■ Conserve the FANUC Forest at the foot of Mt. Fuji, a World Heritage Site	11	15	
■ Reduce waste through lifetime maintenance, supporting our products as long as they are used by customers	12		
■ Collaboration with industry and academic organizations	17		

Society



Overview

FANUC contributes to the development of its customers' businesses and the manufacturing industry, by promoting the automation and robotization of customers' factories. In addition, our employees, who support FANUC's corporate activities, are also

regarded as important stakeholders.

FANUC gives due consideration to people and society, while contributing to the creation of an affluent society as well as its sustainable development.

FANUC Code of Conduct

https://www.fanuc.co.jp/en/ir/code/pdf/codeofconduct_e.pdf 

Human Rights Policy

https://www.fanuc.co.jp/en/ir/esg/social/pdf/humanrightspolicy_e.pdf 

CSR Procurement Policy

https://www.fanuc.co.jp/en/ir/esg/social/pdf/csrprocurementpolicy_e.pdf 

With Our Customers

Basic Approach

The three philosophies of FANUC are comprised of "one FANUC", "Reliable, Predictable, Easy to Repair", and "Service First" (p.4). FANUC contributes to the manufacturing industry around the world by conforming to, and practicing these philosophies.

In development, FANUC focuses on ensuring its customers' safety and enhancing their productivity. FANUC strives to enhance the quality, safety, and reliability of its products, and has established a

quality management system toward this end.

FANUC provides lifetime maintenance to its products for as long as they are used by customers, through more than 260 service locations throughout the world. In addition, FANUC strives to improve customer satisfaction through the provision of training courses at FANUC ACADEMY and support at the time of product installation.

Initiatives

Framework to Promote Product Quality and Safety

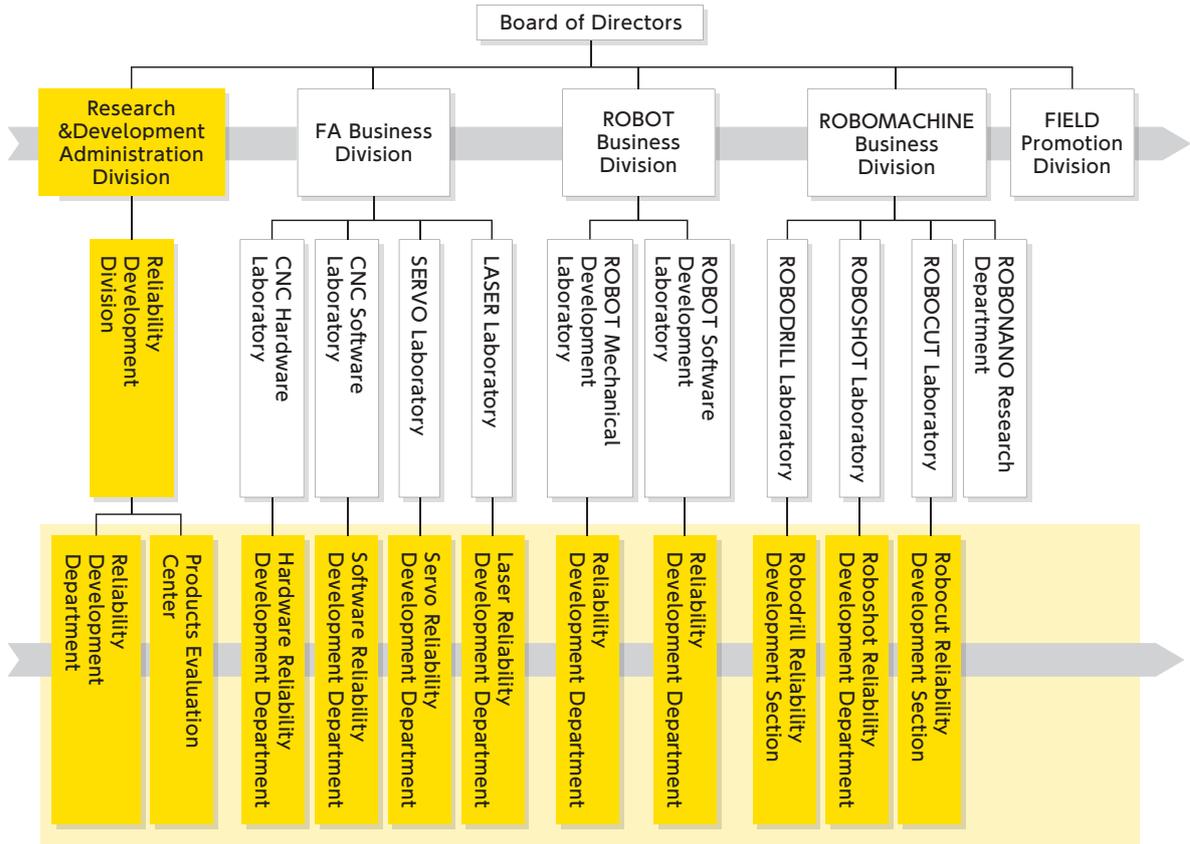
FANUC promotes activities to improve quality in all processes, from development and design of products to product quality buildups and after-sales services following manufacturing and shipment, in an effort to enhance the quality, safety, and reliability of its products.

The Reliability Development Division has been established in the Research & Development Administration Division to ensure the quality and reliability and to enhance the prevention and prompt resolution of quality issues. At the same time, a section devoted to reliability development has been

established in each laboratory in each division that engages in product development and design.

In addition, laboratories within the same business division also share information on both development and technology through various regular technology meetings, and make use of such information during development.

The Service Division has been established to provide after-sales services in order to provide feedback regarding various issues to the manufacturing and development sides.



FANUC strives to ensure the safety and quality of its products through a quality management system based on ISO 9001. We carry out checks through design review and verification in order to meet the requirements of laws, regulations and standards as well as the requirements of individual customers. In addition, we conduct risk assessments of our products. FANUC conducts the following ongoing activities with

the aim of improving and enhancing product quality.

- Technology meetings (held for laboratory executives)
- Reliability development technology briefings (held for researchers)
- Reliability meetings (held in each laboratory)
- Quality meetings (held to improve manufacturing quality)

“Visualization” of Quality and Reliability

The status of quality and reliability in all processes, from product design to manufacturing and after-sales services, is monitored in order to promptly respond to defects. We collect data from our after-sales services,

analyze it, identify issues, and give feedback to our production division and laboratories. These activities are effective in improving our products’ quality and reliability.

Reliability Development Technology

We promote the development of a framework to design and manufacture highly reliable products, as well as sharing of knowledge, in order to enhance the reliability development ability of our researchers. The Reliability Development Division works with members of the Reliability Development Department in each laboratory, to regularly review methods to improve reliability-related issues and proceed with the standardization of reliability development methodologies. In addition, the Defect Management Procedures have been established to define rules regarding response procedures when defects arise. All defects that arise are registered in a database called the Defect Record, which centrally manages

the entire range of processes, from the investigation of the cause to the measures taken. This allows us to “visualize” the progress of the response, and prevent any oversights. The knowledge and lessons of the Defect Record are utilized companywide, and have proven to be effective in terms of quality buildup and quality improvement measures, prevention of the occurrence and recurrence of defects, and the education of young engineers. Furthermore, the Reliability Evaluation Building has an area featuring lessons learned from past defects, where actually used products with quality and performance are displayed. This area is used to educate researchers by encouraging them to learn from past failures.

Reliability Evaluation Technology

As FANUC products are used in manufacturing sites, they are exposed to extremely harsh environments. In order to ensure that our products can operate stably for long periods of time under these conditions, while contributing to minimizing downtime in our customers' factories, we are promoting the standardization of evaluation tests by conducting them in a variety of surroundings.

The Reliability Evaluation Building, which opened in 2016, has a total floor area of approximately 22,679 square meters (103 meters wide × 198 meters deep), and houses a variety of equipment for thorough reliability verification.

This facility is equipped with dedicated test rooms, such as an anechoic chamber, an EMS (electromagnetic susceptibility) test room, a vibration test room, a mist test room, a variable temperature room, a variable humidity room, a capability limit test room, a noise measurement room, a submergence test room, a clean room, and a precision measurement room. In this facility, a variety of tests are performed while taking into account variations in data under various conditions, including the accelerated life test to evaluate long-term reliability.



Reliability Evaluation Building



Anechoic chamber



Mist test room

Solutions for Decreases in the Workforce and Skilled Engineers

The number of workers in the manufacturing industry, as well as the number of skilled engineers is expected to decrease in the future.

FANUC promotes labor saving through the automation and robotization of factories, in order to solve the problem.

In addition, if engineers cannot operate the machines properly, not only will productivity decline, but also the facility operating rates will decrease due to such failures, and the engineers themselves may be injured. We strive to solve this issues by developing user-friendly products.

Partial automation of work processes by collaborative robots	Collaborative robots do not require a safety fence, because they securely stop operating when coming into contact with humans. The deployment of such robots in work processes carried out by humans enables the partial automation of such processes. Collaborative robots provide additional options for solving labor shortage.
QSSR (Quick and Simple Start-up of Robotization)	In order to reduce the technical roadblocks involved in building robot systems, we have packaged the basic elements required to connect CNCs and robots. We support deployment mainly through functions that can be performed by users without teaching robots the operations in advance.
Visual guidance screen	Functions such as a simple adjustment for adjusting machining parameters, which enables easy fine-tuning, are displayed on the guidance screen, to provide visual guidance on how to use the machines. They are user-friendly even for unskilled operators.
Easy-to-use user interface (UI)	The tablet-style teaching pendant and user-friendly UI make it easy even for unskilled workers to conduct operation and programming.
Easy connection of laser oscillators	Highly-synchronous connection with machine tools and robots through simple settings supports the smooth building of machining systems.

Ensuring Customer Safety

FANUC contributes to the improvement of safety and the minimization of downtime at its customers' factories through their safe and stable operation. To this end, it is essential to enhance product safety in order to protect operators from danger. FANUC engages in research and development to ensure a higher level of safety, and its FA, ROBOT, and ROBOMACHINE products comply with the relevant safety standards. Furthermore, based on our "Simple & Smart" design

policy and the Human Centered Design (HCD) concept, we design products that sufficiently fulfill user requirements to their high satisfaction, without deficiency or becoming excessive. In addition to complying with ISO, JIS, and local laws and regulations, our designs take user-friendliness and safety seriously into consideration. We are in the process of formulating related guidelines, and plan to introduce them globally to our overseas offices in the future.

Complying with safety standards	We fully meet safety standards, such as JIS, ISO, and IEC, and have been certified by certification bodies.
Dual Check Safety (DCS)	DCS complies with safety standards (IEC61508 SIL 2, IEC62061 SIL 2, and ISO 13849-1 PL d) and has been certified by certification bodies. Safety-related signals are duplicated for comparative monitoring. In the event of a failure of one hardware safety circuit, the second circuit detects the failure, thus maintaining the safety of the system.
Custom Programmable Machine Controller (PMC) safety function	In our ROBODRILL, the customer or system integrator can apply the abovementioned DCS function to the control of peripheral equipment that is additionally installed on the ROBODRILL. This will make the separate safety circuits and control equipment unnecessary.

Malfunction prevention function	The design gives consideration to safety, such as by halting and issuing an alarm in the case of accidental operations by the operator. In the future, we will work on a feature that stops functions pertaining to hazardous and accidental operations, as well as one that prevents such choices.
Environmental improvement of machining sites	We are replacing plasma cutting with laser cutting, by promoting CO ₂ and fiber laser machining technology. This effort will significantly reduce noise and dust at machining sites and improve the work environment.
Fully covered structure for high temperature parts	FANUC's unique structure features a fully covered injection unit, where the ROBOSHOT heater is mounted, in order to avoid the risk of operator contact with high temperature parts during molding operations.
Collaborative robots	Collaborative robots do not require a safety fence, because they securely stop operating when coming into contact with humans. These robots are used to assist in tasks alongside human workers, enabling operators to avoid heavy lifting, so that persons with less physical strength can perform tasks safely.
Smooth stop function	This function stops robots on a procedure that has been confirmed to be safe in the shortest possible time, in case of of any abnormality.
Brake error diagnosis function	If a failure occurs on a brake while the robot is in operation or at rest, the power of the brake may decrease, causing the robot's gravity axis to fall. This function provides early diagnoses of such brake malfunction, and notifies the user in advance.

Improving Customer Productivity

FANUC pursues the automation and robotization of our customers' factories as well as their high efficiency. FANUC has realized a high operating rates

by analyzing failure information regarding our products, and conducting ongoing research and development to enhance reliability.

FA

FANUC provides highly reliable CNCs, servos, and lasers, which constitute the basic technologies of FANUC. We also realize enhanced productivity of customers' factories by improving performance of these products, as well as saving space by reducing the size of devices.

In addition, we contribute to improve the quality of our customers' products by achieving high-quality machining. The manufacturing of a variety of industrial products using machine tools equipped with FANUC's CNCs and servos contributes to an efficient society, including the manufacturing industry.

Developing a simulation function	The development of CNC simulators such as CNC GUIDE has made it possible to provide education on machining programming, among other topics, even in the absence of actual machine tools. This leads to the improvement of educational efficiency at training sites in the manufacturing industry, as well as a reduction in the required number of units of training machinery and equipment, thereby helping to reduce resources. In addition, the prior detection of program errors in machining
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	<p>programs can reduce the number of defects caused by machining errors in actual machining. This reduction enables cost cutting as a result of curbed power consumption at the time of performance of relevant tasks (such as regular disposal of cutting chips) and machining, because it reduces the amount of cutting chips and coolant discharged.</p>
Developing customizable functions	<p>Since the structures and functions of the machine tools provided by machine tool builders, who are our customers, differ, the required operating screens and control functions also vary. The development of functions allowing customers to easily customize tasks, such as designing displays and controlling signals, enables each customer to provide operators with operability suited to their own machines.</p>
Servo Learning Oscillation	<p>The largest obstacle to automating turning is the situation in which long chips generated by turning become entangled in the workpiece or tool. In addition, such long chips are difficult to discard. This function solves these issues by shredding chips mitigating problems such as damage to tools and defective machining.</p>
Fast Cycle-time Technology	<p>This is a group of functions that reduce machining time. Through optimization of the actual machining operations of the machines as well as a reduction in non-machining time, the overall machining time is shortened and the operating rates of the machines is improved.</p>
SERVO GUIDE, AI Servo Tuning	<p>The utilization of support tools and AI that easily realize the high-level tuning of parameters to control servo motor enables even unskilled operators to carry out servo tuning.</p>
iHMI	<p>iHMI provides a user interface that simplifies the operations of the operator who is the actual user of the machine tool.</p>
MT-LINK_i	<p>With MT-LINK_i, it is possible to identify machining processes that may constitute bottlenecks in the production line, by knowing the operational status of the machine tools installed in the factory. This facilitates process improvement.</p>
Fine Surface Technology	<p>This CNC and servo control technology realizes high-quality machining. This technology can reduce the quantity of work in subsequent processes, such as polishing the machined surface, and enables reduced friction in components used in the manufacturing of automobile parts. This results in enhanced automobile quietness, and solves problems such as noise.</p>
Failure diagnosis function Preventive maintenance function	<p>The failure diagnosis function provides guidance when warnings and alarms are issued, which indicates the cause along with countermeasures, thereby shortening recovery time, as well as a preventive maintenance function that detects signs of failure, thus reducing machine downtime.</p>
Improving spindle motor output	<p>By improving cooling performance, the output of the spindle motor can be increased without changing its size, thus contributing to the improvement of the machining performance of machine tools.</p>

ROBOT

Robots which utilize the basic technologies of CNCs and servos relieve workers from dangerous, dirty, and difficult jobs by performing tasks that were previously handled by humans. At the same time, robots revolutionize work styles, such as by reducing work hours and eliminating night shifts. Through the development of intelligent robots using visual sensors and force sensors, the areas in which robots can be used are expected to expand.

In addition to automating production lines and enhancing efficiency, the utilization of robots improves and stabilizes product quality, as they can continue consistent production over long periods.

Saving space	The Robot R-2000iD, which is frequently used in spot welding and handling applications, has a footprint that is 23% smaller than those of conventional models. It can be mounted in a variety of configurations including on shelves, walls, and ceilings, and saves space by optimizing the factory layout.
Reducing robot cycle time	FANUC has acquired a patent for the world's first practical learning robot. For example, in a conventional car body welding line, the utilization of 30 robots reduced cycle time by 10.2% after learning.
Improving cost efficiency	An automatic guided vehicle (AGV) equipped with a collaborative robot can move autonomously, allowing a single robot to work at multiple locations, and improves the operating rates of the robot in processes with long cycle times.
Automation system design support tool	The use of ROBOGUIDE, a software that automatically calculates the optimal layout of machines and robots, can reduce the time for trial and error required to design an automation system. Optimizing the operating program using ROBOGUIDE reduces cycle time.
Reducing downtime	Zero Down Time (ZDT) is a "predictable" function that alerts users before failure and improves productivity by reducing the downtime in factories. ZDT is connected to more than 20,000 robots around the world, and has prevented more than 1,000 downtime cases.
Remote monitoring of operation	A robot's teach pendant screen can be viewed from a remote PC via a network. Accordingly, the operating conditions of many robots can be conveniently checked from the office, eliminating the need to make rounds of the factory to inspect the operating conditions of each robot.

2019 Winner of double awards (2019): Nikkei Sangyo Shimbun Award for Excellence in the 2019 Nikkei Superior Products and Services Awards/62nd Nikkan Kogyo Shimbun Ten Great New Products Awards Main Prize

Robot R-2000iD/210FH

Winner of double awards (2018): Minister of Economy, Trade and Industry Award and Minister of Internal Affairs and Communications Award at the Eighth Robot Awards

Zero Down Time (ZDT)

ROBOMACHINE

FANUC provides four product groups, consisting of ROBODRILLS (compact machining center), ROBOSHOTS (electric injection molding machine), ROBOCUTs (wire-cut electric discharge machine), and ROBONANOs (ultra-precision machine), which utilize the basic technologies for CNCs and servos. All of these product groups boast high performance and high operating rates, and help our customers adopt IoT in their factories.

Saving space	Compact ROBODRILLS with high machining performance provides the benefits of both saving factory space and increasing flexibility in terms of factory layout.
Reducing machining time	ROBODRILLS shorten cycle time and achieve high productivity by thoroughly reducing idle time, such as the time required to change tools, by executing tool changes and table positioning operations concurrently. In addition, we are proactively expanding compatibility with new machining methods using special tools.
AI backflow monitor	ROBOSHOTS leverage AI to evaluate and predict wear on expendable parts (backflow prevention ring), and conduct “predictable” preventive maintenance. This makes visual inspections, which is the conventional way to confirm wear, unnecessary, thus reducing the workload.
Multi-functionalizing standard models	A second injection unit was developed for ROBOSHOTS. With this unit, molding of two types of resin materials with different functional requirements is made possible within a single mold achieves high-value-added molding with less man-hours in the assembly process.
AI thermal displacement compensation function	Fluctuations in cutting accuracy caused by changes in the temperature of ROBOCUTs are predicted and controlled using AI technology. As a result, compensation accuracy improved by roughly 30% compared with the conventional models.
High reliable auto wire feeding (AWF3)	The ROBOCUT features highly reliable automatic wire feeding that can automatically recover feeding when a wire is accidentally cut and disconnected, thereby enabling unmanned operation for long periods.
ROBODRILL-LINK_i ROBOSHOT-LINK_i ROBOCUT-LINK_i	Monitors the operating status of the entire factory in real-time and supports the early detection of errors for quick recovery, contributing to improvements in operating rates of factory equipment.

2018 Winner of double awards (2018): Nikkei Sangyo Shimbun Award for Best Product in the 2018 Nikkei Superior Products and Services Awards/61st Nikkan Kogyo Shimbun Ten Great New Products Awards Main Prize

ROBONANO α -NMiA

5th (1994)/28th (2017) Japan Society of Polymer Processing Aoki Katashi Innovation Award

Development of AI Pressure Tracking Control for a Fully Electric Injection Molding Machine (1994)
Movement Detection Technology and Injection Volume Stabilization Technology for a Backflow Prevention Ring (2017)

Energy Saving in Our Customers' Factories

FANUC's products also contribute to energy saving.

[Please see page 41 for details.](#) [CLICK](#)

Waste Reduction and Effective Utilization of Resources in Our Customers' Factories

FANUC's products also contribute to waste reduction and the effective utilization of resources.

[Please see page 45 for details.](#) [CLICK](#)

Lifetime Maintenance

FANUC provides lifetime maintenance for its products as long as they are used by customers, even for models that are no longer in production. Lifetime maintenance makes it unnecessary for our customers to discard old models or purchase new models due to discontinued maintenance service, thereby allowing them to use FANUC products at a low cost for several decades.

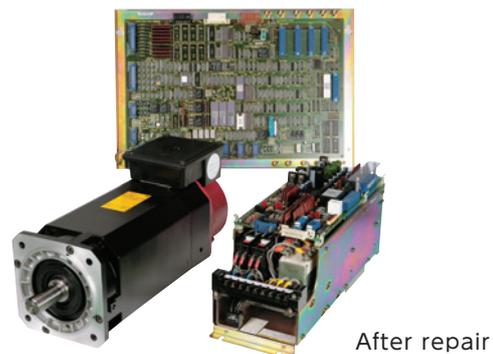
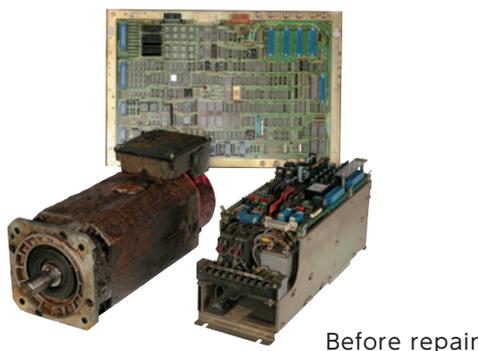
We perform approximately 90,000 repairs per year in Japan, of which roughly 10% consists of products that were manufactured more than 30 years ago. FANUC's Repair Factory has a stock of over 2.6 million pieces of 15,000 types of repair parts, including old parts that are no longer in production, ready to repair used motors, PCBs, or units that are more than 30 years old.

Even in cases where some parts run out of stock, the Repair Factory has a system for finding replacement substitutes or redesigning them. In addition, old manuals are also digitized as part of our efforts for lifetime maintenance.

Units which have broken down are cleaned in a washing machine using robots or other means, and after being dried overnight in a drying furnace, they are repaired. Not only damaged parts, but also parts that are starting to deteriorate are replaced, to attain a quality in repair that is equal to a brand new unit.

The Repair Factory has performed over 1.8 million repairs thus far, and its know-how is utilized in domestic and overseas repairs, as well as being fed back to laboratories.

■ Example of repair for PCB, spindle motor and servo amplifier unit about 30 years old.



Technical Support for Our Customers

Each business division provides support to our customers per product, to enhance customer satisfaction.

In the FA Business Division, the Sales Engineering Department plays a central role in providing technical support and adjustments for installing CNCs at the design/production sites of machine tool builders, who are our customers, as well as support for building

machining systems for laser oscillators and determining machining settings. Engineers are dispatched from laboratories as necessary to share the latest technical information and hold technical meetings to cater to new models designed by our customers.

The ROBOT Business Division and the ROBOMACHINE Business Division also provide technical support for automating production lines of our customers.

Efforts to Facilitate the Introduction of New Models

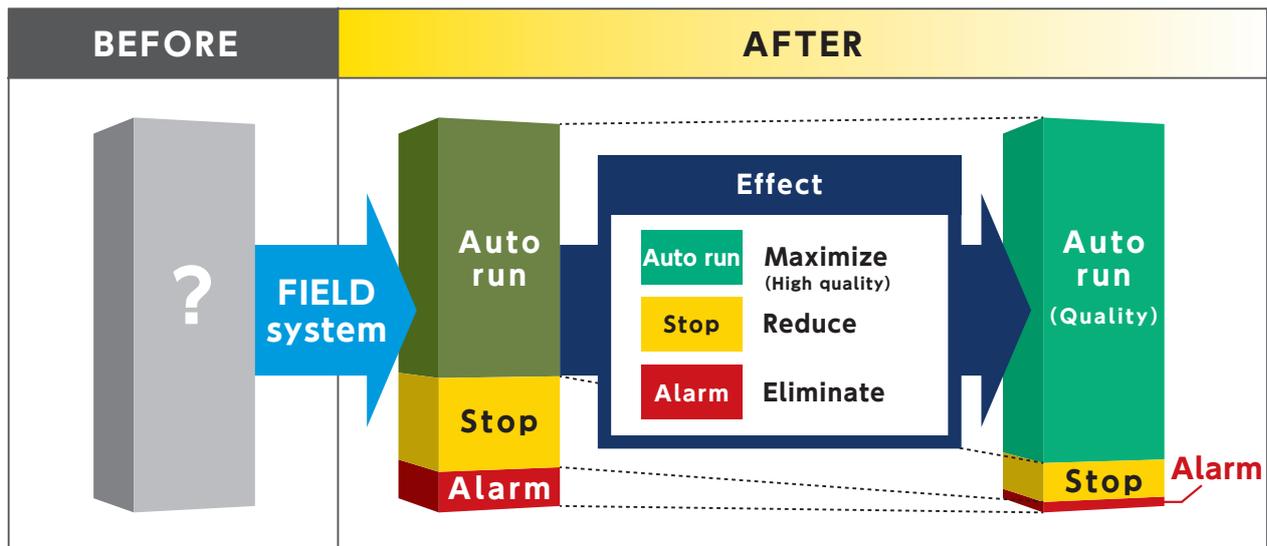
FANUC facilitates the introduction of new machine tool models at manufacturing sites. For machining programs using G code, which are primarily utilized in FANUC CNCs, the program of old models can be used as-is, without making changes. As such, machine tools equipped with FANUC CNCs can reuse the programs and settings of old machines, thereby facilitating the introduction of new machine tools for our users. Even during the introduction of new ROBOT and

ROBOSHOT models, the programs for old robot models can be converted and reused. In ROBOSHOTs, various settings data and parameter files for molding conditions can be transferred to other models. Combined with our efforts for lifetime maintenance, we realize the long-term use of our products, and promote improvements in customer satisfaction and the effective utilization of resources.

FIELD system

The FIELD system (FANUC Intelligent Edge Link & Drive system) is an open platform for manufacturers that aims to further improve productivity and efficiency within the industry. This system increases yield, quality, and output through the visualization of factories, thereby contributing to the maximization of our customers' revenue.

The FIELD system offers an SDK (Software Development Kit), so that third-party developers can also freely develop and sell application software and converters for devices. The design guide of the SDK provides a comfortable development environment with constant surface speed (CSS) that integrates universal design.



FANUC ACADEMY

FANUC has been focusing its energy on training our customers, as well as domestic and overseas service personnel since its foundation, in order to promote automation and robotization in our customers' factories around the world.

In 1982, FANUC established FANUC Training Center which produced more than 100,000 graduates. In April 2019, we increased its scale and established FANUC ACADEMY as an education facility with enhanced content. FANUC ACADEMY offers training courses related to all of our products, from CNCs, servos, and laser oscillators to ROBOTS, ROBOMACHINES, and FIELD system, and offers training courses ranging from

two days to three weeks, according to the needs of trainees.

During the one-year period from April 2018 to March 2019, a total of 5,186 trainees attended from Japan and overseas.

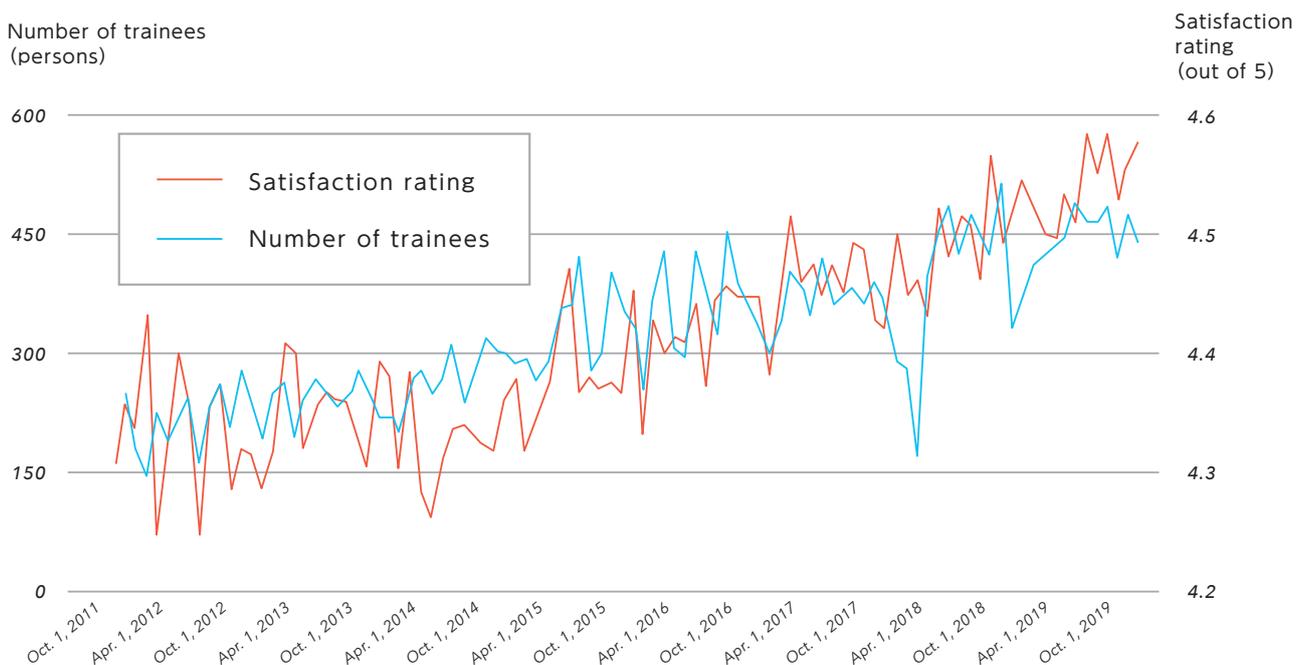
In addition, FANUC ACADEMY is also working with training schools established in the United States, Europe, and China to build a system for conducting training based on FANUC's global standard. The ACADEMY is intended to nurture sophisticated customer service as it provides a high level of technical education to personnel in charge of training and service throughout the world.

Systems to Enhance Educational Effectiveness

Workshop classrooms	Actual products are installed in our classrooms, so that trainees can practice directly on CNCs or machines by their side, while listening to lectures.
e-Learning	A tablet is provided for making preparations and reviewing training materials through e-Learning. Trainees can learn in the classrooms during breaks and in the guest rooms at night.
Abundance of machines for practice	For training on CNCs, ROBOTS, and ROBODRILLS, one unit is provided to each trainee.
Guest House	There are 110 spacious guest rooms. There is also a cafeteria and onsen facilities (hot spring baths) where trainees can refresh themselves.

We have revised our systems to thoroughly enhance educational effectiveness, and have received a rating of 4.5 or higher out of 5 on the trainee satisfaction survey, since 2019.

<FANUC ACADEMY's Satisfaction Rating and Number of Trainees>



※The number of trainees decreased from February to March 2018, due to the transition from FANUC Training Center to FANUC ACADEMY. During this period, the Nagoya school continued to offer training.

In addition, FANUC ACADEMY gives factory tours to students from local technical high schools, providing them with opportunities to see actual manufacturing sites first-hand.



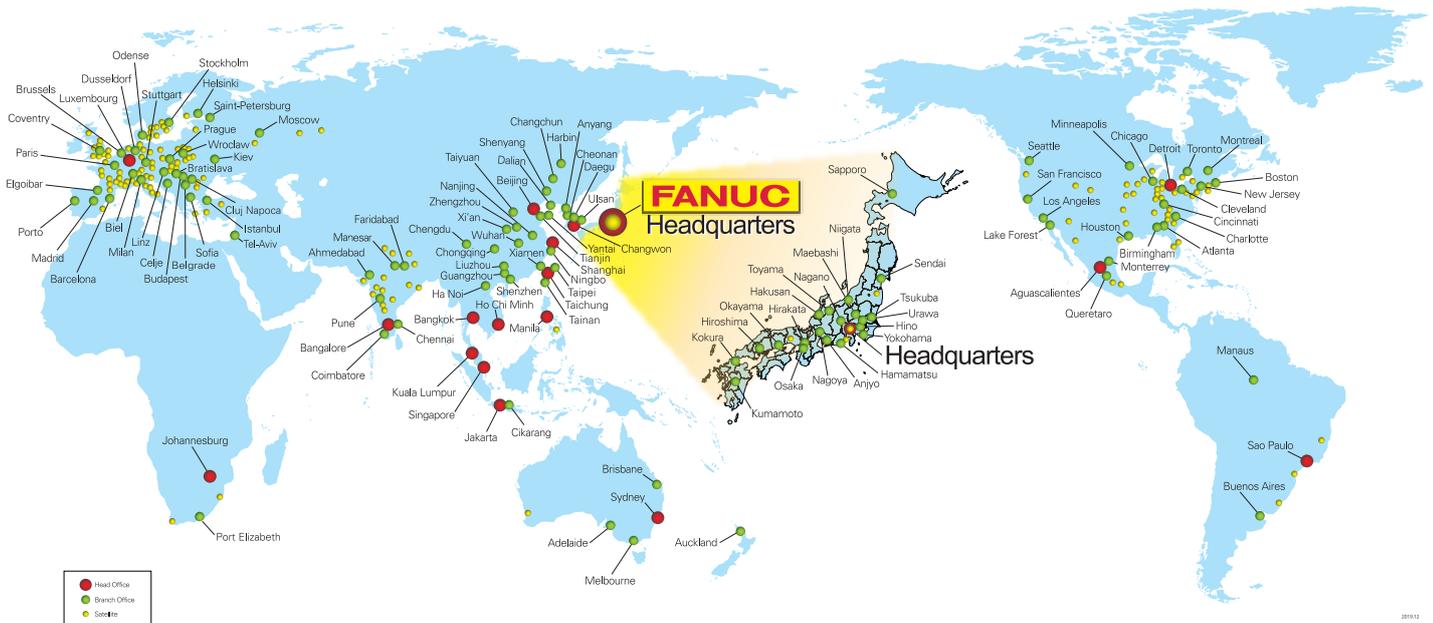
Providing Global Services

Based on the spirit of “Service First”, FANUC provides lifetime maintenance for its products for as long as they are used by customers, through

more than 260 service locations supporting 108 countries throughout the world.

FANUC Global Service Network

262 Locations supporting **108** Countries



Basic Approach

FANUC strives to improve customer satisfaction by providing prompt and careful services.

Policy

Service First

Please see page 4 for details.

[CLICK](#)

Promotion Framework

In order to promote our basic policy, we hold the Global Service Conference, organized by the President & CEO, once in each year, which is attended by service personnel from locations around the world.

Furthermore, case studies and knowledge regarding topics such as parts and technical information, maintenance tools, and service training are shared through a variety of working group activities.

Goals

We aim to improve customer satisfaction by providing better services. To this end, we make efforts to shorten the average waiting time for

services, and increase the percentage of maintenance parts that can be delivered immediately on demand.

To Realize Flexible Services

More than 2,000 service personnel and support staff (all are FANUC Group employees) around the world handle phone calls, provide services at customer sites, and manage maintenance parts. Units replaced at the request of our customers are repaired at Repair Factories in 10 locations around the world to be reused. Using these units in subsequent maintenance services leads to waste reduction and the effective utilization of resources.

In our domestic services, we are striving to enhance mobility, primarily by having all field service personnel carry a mobile device, so that representatives can visit customer sites as quickly as possible, based on the current locations of all personnel.

The realization of flexible services requires all types of maintenance parts that amount to an enormous quantity. FANUC has a global parts warehouse in Japan, as well as a global inventory search system in

an effort to visualize the inventory around the world. By globally managing our inventory of maintenance parts, regardless of how old or rarely used they may be, they are stored at some locations around the world. Inventory data is updated to provide parts as quickly as possible. In addition, we prepare an overall demand forecast for maintenance parts, in order to utilize the data to streamline the supply of parts.

Furthermore, we established additional core locations in Japan as part of our business continuity plan (BCP), to secure the continuity of our services. We have also ensured that we can continue providing lifetime maintenance by establishing call centers and parts warehouses in the two locations of Hino, Tokyo and Komaki, Aichi, as well as by mirroring the servers that contain accumulated information, including past service data.

Enhancing Our Service System

In our after-sales service, in addition to carrying out repairs in a short time, we are strengthening our efforts to implement preventive maintenance by detecting signs of trouble before breakdowns. Accordingly, we are encouraging preventive maintenance in order to improve operating rates in our customers' factories.

In our call centers, we accept inquiries regarding repairs in case of failures and parts sales. In an effort to provide efficient services, we have set up a toll-free

line in Japan, and call centers use a dedicated reception software which are updated as needed, reflecting requests from service personnel and operators. Similar software is used in our overseas offices tailored to the circumstances and characteristics of each country.

Key data from individual maintenance reports is shared among countries, and utilized primarily to improve reliability, and develop jigs and tools.

<Services in Japan>

We accept calls until 5:10 p.m. on Saturdays for customers who operate their factories on weekends.

After long public holidays and other occasions when calls concentrate, all staff in each location including managers handle calls and calls are forwarded from the call center to available lines at sites to prevent a fall in response rate.

We also provide the CS24 service (for a fee) to customers who request availability at night, and on Sundays and holidays.

Some overseas offices have individual contracts with customers to provide maintenance services 24/7.

In addition, we provide a maintenance contracts after expiration of the warranty period. Customers who have signed the contract to prepare for any product failures after the warranty period expires, are entitled to repair services which are free of charge within the contract term for an unlimited number of times (certain parts and supplies are excluded).

Membership Website

A membership website established in April 2015 provides downloads of electronic data for outline drawings to members free of charge. There are two types of membership, i.e. general membership open to the general public amounting to around 20,000 members, and customer membership limited to actual users of FANUC products currently consisting of around 5,000 members (as of December 31, 2019). Customer membership website is a very convenient site where a customer can download materials including electric manuals and purchase maintenance parts.

In December 2019, we added a chatbot function,

launching a registration service for customer product information and a Q&A service regarding the membership website. Compared to the past when service personnel entered such registration information sent back from customers on postcards, such information can now be self-registered by customers, enhancing convenience for both parties. We are launching a new maintenance information service based on the registered information.

*Japanese site services are available only in Japan.

<https://store.member.fanuc.co.jp/> (in Japanese) 

Customer Satisfaction Surveys

FANUC America, FANUC Europe, and other overseas group companies conduct regular customer satisfaction surveys. In Japan, we conduct anonymous

customer questionnaire surveys each year, in order to reflect customer feedback in improvements to our services.

Support for Restoration from Typhoon Damage

In 2019, Typhoon Faxai and Typhoon Hagibis caused record storms and heavy rains in northern and eastern Japan. We have been supporting the restoration efforts of many customers who suffered flood and other types of damage in their factories. In addition to our service personnel, the employees at our laboratories and the Production Division

also joined to inspect, clean, and repair all of the products in use. As a result, we were able to quickly restore a total of 400 units, among the 531 units that were damaged.

FANUC will continue our efforts under the philosophies of “one FANUC”, “Reliable, Predictable, Easy to Repair”, and “Service First”.

With Our Employees

Basic Approach

FANUC considers its employees to be human resources who are indispensable for the Company’s business activities. We will support the

health and growth of our each of employees and provide an environment that allows each employ to attain self-realization with a sense of purpose.

Initiatives

Communication with Employees

FANUC recognizes that each employee’s individuality, as well as the comprehensive capabilities of our employees constitute the source of FANUC’s growth and competitiveness. Accordingly, we believe that it is extremely vital to conduct bidirectional communication, which properly conveys the

Company’s status, policies, and expectations to our employees, while also receiving input from them.

In order to enhance communication, FANUC engages in indirect communication via the labor union, as well as direct communication.

(1) Communication via the labor union

1) Production Council (four meetings per year)

The Council explains the Company’s production status, hiring plans, work hours, and other short-term conditions to the labor union, and receives requests from the labor union.

2) Spring labor-management negotiations (five times from February to March)

Spring negotiations are held to share the Company’s business condition and determine the working conditions based on a labor-management agreement.

3) Regular labor-management meeting (once per month)

A forum is provided for sharing and resolving daily occupational, health and safety issues.

4) Labor-Management Overtime Management Committee (once per month)

The Committee shares the actual situations and issues regarding work hours for objectives such as work style reforms, promotion of health, and work-life balance, and discusses directions for resolving these issues.

(2) Direct communication between the Company and employees

1) When announcing financial results, we send a message to our employees regarding the Company’s business performance and the associated background, broadening their understanding of the Company’s conditions as we strive to foster a sense of unity with employees.

2) We regularly conduct an organizational performance evaluation clinical system and listen to employee opinions from the perspective of employee satisfaction, while using the PDCA cycle to discover and resolve issues.

■ Promotion of Employee Diversity

Basic Approach

FANUC respects and supports the diversity of our employees, and creates an environment that accepts diversity, based on the philosophy that diversity gives rise to new values.

We have established various systems to realize work-life

balance, and we are providing support to assist each employee in leading a life that balances work and private life. To promote the active participation of women, we are supporting career development for our female employees, and have opened a nursery in the Headquarters' site.

Initiatives

Practicing Work-life Balance

FANUC considers reduction of long working hours to be an issue, and is striving to lower the maximum limit for overtime work and promote the taking of annual vacations as corrective measures. Annual vacations were taken at a rate of 85% in fiscal year 2018, and we check the achievement status of these goals in monthly meetings attended by executives.

Furthermore, we carry out reviews of the system to make it easier to take vacations in addition to annual ones. In addition to establishing a system for infertility leave, we have added family care and infertility treatment to the purposes used for accumulated vacation (paid). To better

promote the balance of work and child-care, we have extended the application of the shorter working hours system for child-care, as well as the exemption from overtime and work on holidays for child-rearing employees upon request, until children have finished elementary school.

Recently, as the number of employees who have been diagnosed with cancer or other illness and wish to continue working while receiving treatment is increasing, we have established a helpdesk to support such employees so that they can work while receiving treatment, by actively promoting shorter working hours and other means.

(Main Systems)

- Child-care leave (Return-to-work ratio: 100%; Retention ratio one year after returning to work: 100%)
- Maternity leave
- Nursing-care leave (e.g., to take care of elderly parents)
- Infertility leave
- Subsidies for specific infertility treatment costs

- Shorter working hours for child care
- Refreshment leave (can be taken after 10 years, 15 years, 20 years, 25 years, 30 years, 35 years, and 40 years of employment)
- Leave due to transfer of a spouse

Promoting the Active Participation of Women

In addition to striving to ensure that employees can play an active part in the workplace regardless of factors such as nationality and gender, etc. FANUC has enhanced various systems including maternity leave, child-care leave, and shorter working hours until children finish elementary school, so that women can pursue their careers without interruption. In this manner, FANUC fully supports the active participation of women in the workplace.

In April 2018, we formulated and announced our General Employer Action Plan Based on the Act on Promotion of Women's Participation and Advancement in the Workplace, and we are actively promoting the recruitment of women, with the aim of improving the percentage of female employees and the ratio of women in managerial positions. Under this plan, FANUC has established two targets for the Company as a whole: a 10% ratio for female regular employees and a 5% ratio for women among newly appointed executive employees.

To achieve these goals, we are promoting efforts such as

having female researchers visit schools and handle company visits by female students when recruiting for technical positions, and promoting efforts to create opportunities for women to discuss work and actual lifestyles. We are also implementing initiatives such as external seminars to support career development for female employees. At FANUC, 100% of the female employees who have used the child-care leave system during the past three years have returned to work, which confirms that the Company's working environment is comfortable for women. Furthermore, we opened a nursery for employees' children in the Headquarters' site in April, 2019, using the company-initiated nursery business system, supervised by the Cabinet Office.

Recently, women are increasingly playing active roles in various fields as executives, with two female employees promoted as officers.

We will further support the participation of women through continued efforts in the future.

Employment of Persons with Disabilities

When determining assignments, FANUC takes into account the characteristics of each individual's disabilities as well as his/her aptitudes, while also considering safety aspects so that persons with disabilities can play an active role in the Company.

We have also established a support system to promote the

employment of persons with disabilities, by cooperating with the Japanese government's Hello Work employment centers and the Yamanashi Prefecture Vocational Center for Persons with Disabilities, and by appointing vocational life counselors for persons with disabilities.

Our Approach to Hiring

FANUC thoroughly implements the “prohibition of discrimination based on race, creed, sex, social status, religion, nationality, age, mental or physical disability, etc.” in its recruitment practices, as well. While we hire

international students, we do not treat them in an different manner, or discriminate against them in any way based on nationality.

Employee Health and Safety

Basic Approach

FANUC promotes the prevention of occupational accidents and the development of a comfortable working environment, with a view toward creating a workplace where employees can work safely in a healthy manner. The FANUC Health and Safety

Committee promotes the creation of a workplace where each employee can stay safe and healthy, through the formulation of our Safety Management Policy and Health Management Policy.

Policies

[Safety Management Policy]

FANUC actually communicates information to each employee by utilizing the newly introduced team leader system for our workers at manufacturing sites, and carry out activities to reduce the risk of disasters by improving work guidance.

[Health Management Policy]

FANUC places an emphasis on preventing heat strokes during the summer in view of recent exceptional weather conditions, while working to maintain and manage the physical and mental health of our employees.

Promotion Framework

FANUC has established the FANUC Health and Safety Committee as an organization that mainly discusses and determines company-wide safety and health management policies, related measures and significant issues.

The Committee holds two meetings per year, with the President & CEO designated as the person responsible, and officers of each business division and the union leader as its members. The Safety and Health Department of the Human Resources Division serves as

the secretariat engaged in coordinating activities.

In addition, we have established District Safety and Health Committees based on the law in four factory districts and five sales office districts for health and safety activities. Each District Safety and Health Committee holds meetings of the Workplace Safety and Health Committee, which is a sub-organization per department, to notify instructions and other matters from the District Safety and Health Committees to each workplace.

Initiatives

FANUC has specified five priority activities, and are pursuing our efforts through the establishment of a promotion department, that mainly works together with the Safety Section and each workplace.

We aim to reduce occupational accidents by setting single-year goals regarding safety management.

Preventing occupational accidents	We will prevent equipment-related accidents through the introduction of safety assessments at the time of installation of equipment. We will establish a system to provide internal notifications of the cause of each accident and countermeasures taken, with the aim to prevent accidents.
Improving the work environment	We will improve the work environment based on the results of working environment assessment.
Health maintenance and promotion	Efforts are being made to eradicate occupational diseases by conducting special health examinations, along with follow-ups of the health examinations results.
Preventing fire accidents	Efforts are made to prevent accidents by improving the management of equipment that use fire within the workplace.
Preventing cargo handling and transport accidents	Efforts will be made to create a system for preventing forklift accidents.

■ Development and Training of Employees

Basic Approach

FANUC supports the growth of our employees as human resources who are indispensable for FANUC's business activities and who contribute to the value enhancement of FANUC.

We pursue human resource development to enable each employee to act as a strong individual who recognizes his or her own role, while reaching out to

those concerned, and acting pro-actively with an eye toward the Company's goals.

We offer education and training in each workplace. For example, the Service Division strives to improve customer satisfaction by providing technical education to service personnel in Japan and overseas.

Initiatives

In the past, FANUC conducted employee education mainly through OJT in each workplace. However, in recent years, we have come to believe that it is necessary to renew our efforts to instill widespread understanding among employees regarding our stance as a company and our corporate culture

regarding FANUC's aims and what each employee should do to achieve them.

We are therefore establishing training programs at FANUC Headquarters and in each of our overseas offices.

[Current Efforts]

- Education for new recruits
- Training for new executive employees
- Support after obtaining external qualifications
- Support for English language training

Education and Training in the Service Division

The Service Division conducts education and training for service personnel. At FANUC, we believe that improving the level of the services provided by our service personnel is of utmost importance. As such, we are working to provide high-quality services globally through the education and cultivation of our service

personnel.

In addition, we strive to further improve customer satisfaction by giving consideration to personal appearance, behavior and manner of speaking, based on the Service Engineer Code of Conduct.

Technical education at FANUC ACADEMY	FANUC ACADEMY provides technical education to service personnel Japanese and overseas almost every week, utilizing training programs that incorporate our customers' requests.
Technical education at principal subsidiaries	We also provide technical education to service personnel at FANUC America, FANUC Europe, and other principal subsidiaries. With regard to education on new models and advanced technology, the persons in charge participate in programs offered by FANUC ACADEMY to acquire the necessary skills, and deploy them within their offices after returning to their countries.
Introductory training and follow-up training of new employees	In Japan, we provide intensive education to new service personnel for four to five months, at the time of onboarding. Service personnel hired overseas are also given training when they come to Japan. Furthermore, follow-up training is provided to new hires one year after joining the Company.
Winter intensive training (Japan)	In the winter, FANUC ACADEMY conducts intensive skill improvement training, mainly with regard to new products, so that all service personnel are able to provide high-quality service based on FANUC's global standards.

<Implementation Status of Education and Training for Fiscal 2018>

Number of FANUC ACADEMY trainees	Domestic service personnel: 53 Overseas service personnel: 274
Number of trainees trained in principal group companies	Overseas service personnel: 671
Number of FANUC ACADEMY training hours (annual average per trainee)	Domestic service personnel: 34.9 hours

Respect for Human Rights

Basic Approach

At FANUC, we respect the human rights of all persons involved in our business, based on the understanding that it is the basic principle of all activities, in accordance with our Human Rights Policy.

In addition, the FANUC Code of Conduct prohibits “discrimination based on race, beliefs, gender, social

status, religion, nationality, age, mental or physical disability, sexual orientation, sexual identity, etc.”

We ensure that employees do not infringe the human rights of others through harassment prevention education and line-care training.

Human Rights Policy

https://www.fanuc.co.jp/en/ir/esg/social/pdf/humanrightspolicy_e.pdf 

FANUC Code of Conduct

https://www.fanuc.co.jp/en/ir/code/pdf/codeofconduct_e.pdf 

Laws and International Norms of Behavior

FANUC respects human rights as defined in international norms, such as the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights and the International Covenant on Economic,

Social and Cultural Rights, and the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights at Work, in accordance with the guiding principles on business and human rights.

Human Rights Due Diligence

FANUC will evaluate and identify potential and actual human rights risks and implement measures to avoid or reduce such human rights risks.

We will encourage our business partners and related parties not to infringe human rights if they have a

negative issues on human rights.

When it is clear that our business has caused or has engaged in any violation human rights impacts, we will endeavor to implement remedies them, and will establish a grievance system as necessary.

Promotion Framework

A human rights helpdesk has been established in the Welfare Department of the Human Resources Division, where consultations are handled by the executive employees in charge (one male and one female). In

addition, the Welfare Department conducts safety education, harassment prevention education, and line-care training.

Initiatives

Priority Issues on Human Rights

The following items will be addressed as priority issues.

<Prohibition of Discrimination>

- Prohibition of discrimination based on gender, age, nationality, ethnicity, race, place of origin, religion, beliefs, disability, sexual orientation, sexual identity, etc.

<Respect for the Rights of Workers>

- Ensuring employee health and safety
- Prohibition of all forms of harassment
- Prohibition of child labor and forced labor
- Respect for the rights of foreign and migrant workers
- Respect for freedom of association and the right to collective bargaining
- Prevention of low-wage labor (labor less than the minimum wage and living wage)
- Prevention of excessive amounts of overtime

<Respect for the Rights of Vulnerable People>

- Respect for the rights of local and indigenous peoples related to our business
- Respect for the rights of women, children, persons with disabilities, minorities, and the elderly
- Avoiding complicity in conflicts and human rights violations relating to mineral procurement

<Protection of Privacy and Personal Information>

- Respecting the privacy of customers, employees, and other parties concerned, and protecting personal information

Communication and Education

- We thoroughly inform all employees and our group companies of our human rights policies.
- Communicate with relevant stakeholders on measures against risks and impacts on human rights.
- We will appropriately disclose and report information on our Human Rights Policy and related initiatives.



With Local Communities and Society

Basic Approach

FANUC values coexistence with our local communities. Many of our employees have moved from other areas to Yamanashi Prefecture, in which our Headquarters is located, following a local lifestyle while working close to home. FANUC employees rely on the organizations and facilities of the local government and community in their daily lives. Accordingly, FANUC makes efforts to contribute to the local community, such as by

welcoming factory visits by students of local technical high schools and making donations to the community. In addition, FANUC values contributing to society. Through the FA Foundation, we support research on factory automation (FA) and industrial robot technologies, and participate in the programs for training future robot engineers led by the Ministry of Economy, Trade and Industry.

Initiatives

Supporting Research through the FA Foundation

The FA Foundation was founded in 1989 by Dr. Seiueemon Inaba, the current Honorary Chairman of FANUC. FANUC donated funds at the time of establishing the Foundation, and has made donations to cover its operating costs since that time.

The mission of the FA Foundation is to contribute to society by improving automation technology, and automating machinery and machine factories, primarily through official commendations of research achievements related to factory automation (FA) and industrial robot technologies.

In fiscal 2018, a total of seven outstanding theses were commended by the Foundation.

<http://www.faf.or.jp/index.html> (in Japanese) 

The Consortium of Human Education for Future Robot System Integration

On December 18, 2019, under the initiative of the Ministry of Economy, Trade and Industry, industry players, including FANUC and the National Institute of Technology, signed a memorandum for establishing the Consortium of Human Education for Future Robot System Integration to develop human resources in robotics.

This initiative aims to match schools and educational institutes with industrial players in the robotics field. It is hoped that such matching will introduce students and teachers to internship programs, promote the dispatch of robotics engineers from companies to schools, and facilitate the development of future human resources in the robotics field.

FANUC contributes to the development of human resources in robotics, through activities such as internship programs for teachers and the dispatch of lecturers to technical colleges and technical high schools.

Contributions and Donations to the Community around FANUC Headquarters

FANUC has donated items such as testing machines and other equipment to the Fujiyoshida Municipal Medical Center, which often assists us with employee health management, thorough examinations, etc.

In addition, we make ongoing contributions to the Yamanashi Prefecture Community Chest's "Red Feather Community Chest", and provide food support to the non-profit organization, "Food Bank Yamanashi".

Factory Tours

At FANUC Headquarters, we welcome factory visits by students of technical high schools in Yamanashi Prefecture, which give them a chance to experience seeing an actual manufacturing work site. We also send employees as guest lecturers to local junior high schools.

Support for Reconstruction in Disaster Zones

FANUC assists in the restoration of disaster-stricken areas, in order to help disaster victims. Such activities include donations at the time of the Great East Japan Earthquake in March 2011, the torrential rains in the Kanto and Tohoku areas in September 2015, the Kumamoto earthquake in April 2016, and the heavy downpours centered on western Japan in July 2018, as well as recovery support activities for disaster victims, to enable affected customers to resume operations as quickly as possible.

Employees also engaged in volunteering activities in the aftermath of the Kumamoto earthquake.

Inviting a City Gas Station to the Area

FANUC invited a city gas station to be built in the Headquarters area to reduce power consumption, which helped promote the use of city gas among local residents.

Supply Chain Management

Basic Approach

FANUC purchases raw materials, electric and electronic parts and mechanical parts used in its products, and the equipment, tools and fixtures used in our factories and other facilities, as well as outsourcing their machining and assembly, from approximately 950 suppliers. These suppliers are all important partners who are indispensable for

the production of FANUC products, and we are working to establish a collaborative system with these suppliers that allows us to grow together. To this end, we strive to develop mutual trust, with a view toward fulfilling the social and environmental responsibilities required of supply chains by domestic and overseas communities.

CSR Procurement Policy

https://www.fanuc.co.jp/en/ir/esg/social/pdf/csrprocurementpolicy_e.pdf 

Promotion Framework

Purchasing Department

At FANUC, the Purchasing Department is in charge of the promotion and management of the supply chain. The Purchasing Department manages the quality, delivery time, and cost of suppliers, while internally sharing information on each supplier in a timely manner, as the point of contact for our suppliers. The Department also requires suppliers to comply with our CSR Procurement Policy. The Purchasing Department cooperates with

laboratories and the Production Division to actively promote the use of multiple suppliers, in order to reduce supply chain risks. In addition, with regard to parts (especially customized parts) that have only one supplier, the Department works to maintain an appropriate level of inventory even during ordinary times, so that in the event of a disaster, these parts will be secured until the supplier's factory recovers.

SCRM Working Group

FANUC has set up the Supply Chain Risk Management (SCRM) Working Group to consider, and take appropriate measures against supply chain risks in the event of a disaster. The SCRM Working Group studies the location and area of the manufacturing facilities for each part, so as to immediately determine which suppliers may have been impacted, in the event of a disaster. In addition, with the cooperation of our suppliers,

the Group has built a system (automatic email transmission) to investigate the safety of suppliers' employees, as well as whether factories and other facilities have been damaged in the event of a disaster (an earthquake with an intensity of 5 or greater, etc.). The Group also investigates and analyzes our suppliers' efforts toward BCP, and urges suppliers to make improvements, when deemed necessary.

Disaster Response Team

In the event of natural disasters such as earthquakes and typhoons, the Purchasing Department conducts automatic email transmission (as described above), while identifying suppliers that may have suffered damage based on factory location information studied in advance by the SCRM Working Group, and confirms their status. In particular, in the event of a large-scale disaster, the Disaster Response Team initiates its activities

in cases where the supply chain is deemed to have been seriously damaged. The Disaster Response Team comprises personnel selected in advance from each laboratory, each manufacturing department, and the Purchasing Department. These personnel work together to grasp the status of the suppliers, and confirm the delivery time of parts, and take supplementary measures for those that have become difficult to obtain.

Initiatives

Master Transaction Agreement

The following articles are stipulated in the master transaction agreement we conclude with each supplier, and compliance to these articles is required as important items.

Article 33 Environmental Policy and Environmental Laws and Regulations

Article 39 Elimination of Anti-social Forces

CSR Procurement Policy

FANUC established the CSR Procurement Policy in July 2019.

The Supplier Code of Conduct is prescribed within this Policy. We send this Policy to each supplier and request their compliance.

Conforming with Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors

FANUC strictly complies with the Act against Delay in Payment of Subcontract Proceeds, Etc. to Subcontractors (hereinafter the "Subcontract Proceeds Act"). Approximately 300 companies, or 30% of all of our suppliers, are subject to the Subcontract Proceeds Act. We pay rigorous attention to ensure that there is no unjust disadvantage to our suppliers, in accordance with the Subcontract Proceeds Act.

Conflict Minerals

FANUC has a policy of not using conflict minerals* in its products. Accordingly, we strive to gather as much information as possible from our suppliers, in order to confirm that the minerals are not sourced by illegal mining from conflict areas.

* Conflict minerals refer to minerals (tin, tantalum, tungsten, and gold) that are illegally mined in conflict areas (Democratic Republic of the Congo and surrounding regions). Companies listed in the United States are required to disclose and report the use of such minerals, under the conflict mineral disclosure rule (Dodd-Frank Act) of the U.S. Securities and Exchange Commission (SEC).

Reduction and Elimination of Harmful Substances Contained in Products

FANUC promotes reduction and elimination of use of harmful substances targeted by the RoHS Directive and the REACH Regulation. Accordingly, we notify our suppliers of the related policies and request their cooperation. Since new substances may be included due to revisions of the regulations, we always strive to obtain the latest information regarding the directive and regulations, and take measures to reduce or eliminate harmful substances contained in products.

Goals

FANUC pursues the development of products that are "Reliable, Predictable, Easy to Repair". In the belief that we will be able to earn a high level of customer satisfaction over the long term by continuously

supplying highly reliable product. We convey this policy to our suppliers to encourage them to enhance the reliability of deliverables and other products.

Single-year Goals

So-called silent change (changes made to the quality of deliverables, unbeknownst to the Company) at our suppliers may have a significant impact on the quality of FANUC products. In order to prevent such silent change, we require our suppliers to apply for changes in 4M (Man, Machine, Method, Material) and obtain FANUC's approval in the event of any changes made to deliverables. Each year, we send documents stating

our request regarding changes to our suppliers, in order to obtain a response indicating their consent.

If some suppliers do not consent on the grounds of confidentiality or respond by adding conditions, we hold discussions with the said suppliers and strive to increase the number of suppliers who provide consent, so as to maintain a high level of quality without undermining mutual trust.

Medium-term Goals

We will build a database for the centralized management of supplier information. In addition to the supplier's information (sales, profit, items handled, and factory information) and the supplier's relationship with FANUC (transaction amount, products purchased,

the contact department and PIC within the supplier), the database will also list an evaluation of the quality, delivery time, and cost of each supplier. In addition, we will consider posting information such as the supplier's efforts on ESG-related items.

Environment

Environmental Initiatives

Basic Approach

FANUC Headquarters is located in a stunning forest environment adjacent to the Fuji-Hakone-Izu National Park. We have been working to protect this wonderful natural environment on our premises spanning 1.78 million square meters.

In 1999, in order to conserve the global environment, in addition to protecting the nature on our premises, we established the Environmental Policy, and have continued to update it since then. This policy guides all of our environmental initiatives by summarizing and clarifying our basic stance, which is to reduce the environmental burden at each stage of the product life cycle, from product development to procurement,

production, and operation.

Based on our basic vision of “leaving nature and resources to posterity”, we have been working on reductions of CO₂ emissions and energy consumption, which are considered to be the causes of climate change, the efficient use of resources such as water and minerals, as well as the proper disposal and reduction of waste, from both the viewpoints of products and corporate activities.

FANUC shares this Environmental Policy not only within the Company and group companies, but also with its suppliers to work on achieving global environmental conservation together.

◆Basic Vision

Leaving nature and resources to posterity

◆Environmental Policy and Action Policy

https://www.fanuc.co.jp/en/ir/esg/environment/pdf/environmentalpolicy_e.pdf 

Promotion Framework

Environmental Management Promotion Framework

FANUC recognizes that actions for the environment are an important tasks, with the President & CEO designated as the person responsible for the initiatives. Important environmental issues, including climate change, are reported to the Board of Directors for decision-making. Reports on the progress of FANUC’s environmental initiatives, and the direct and indirect impacts of the environment on our business activities are collected from environmental managers assigned to the relevant

divisions, and reported at the ISO14001 meeting, which is chaired by the Executive Managing Officer and General Manager, Production Division. Important matters are reported to the Board of Directors for decision-making.

Regular reports include the setting of environmental goals in March of each year, as well as a report on environmental management for the previous fiscal year in June.

Environmental Management System

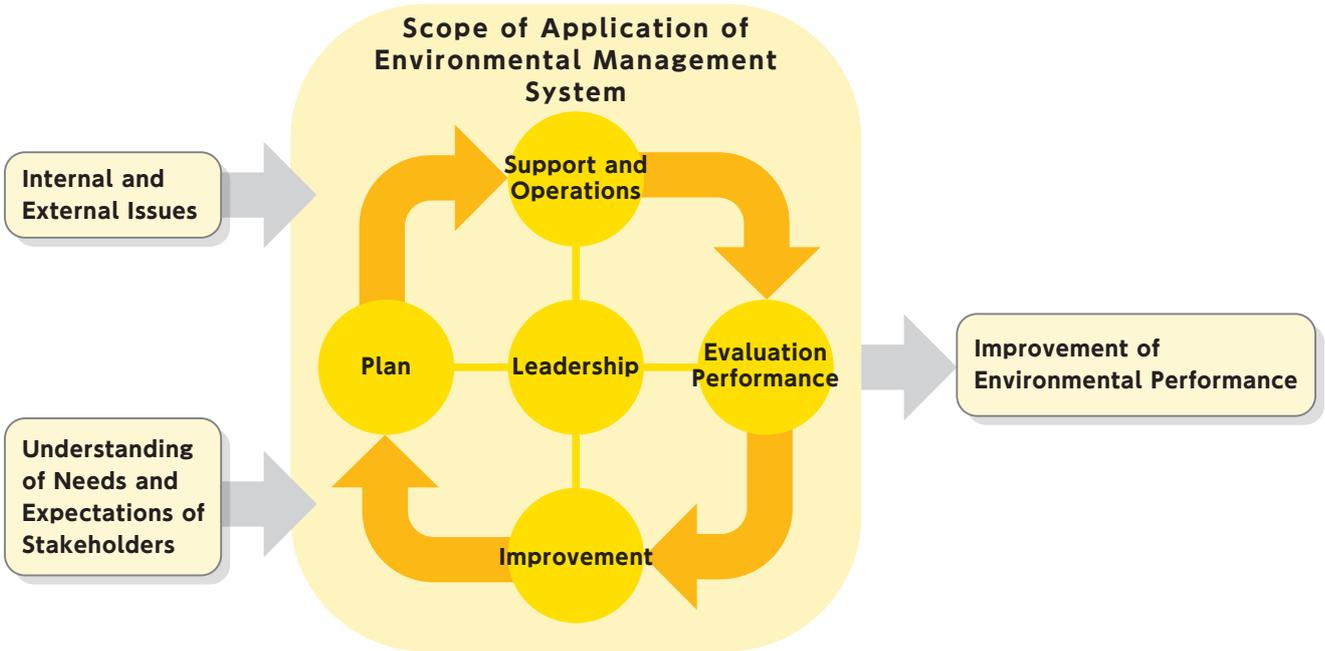
FANUC has acquired certification for the international standard for environmental management systems ISO 14001 (2015 version).

In August 1999, the entire FANUC organization was granted ISO14001 certification, with the registered range being those activities related to FA, ROBOT, and ROBOMACHINE products (including research and development, manufacturing, and sales & service). This not only covers Headquarters (Yamanashi) but also the Tsukuba Factory, Hayato Factory, and each of Hino,

Nagoya, Osaka, Hokkaido, Tsukuba and Kyusyu branches and offices. In fiscal 2018, our Mibu Factory was also included.

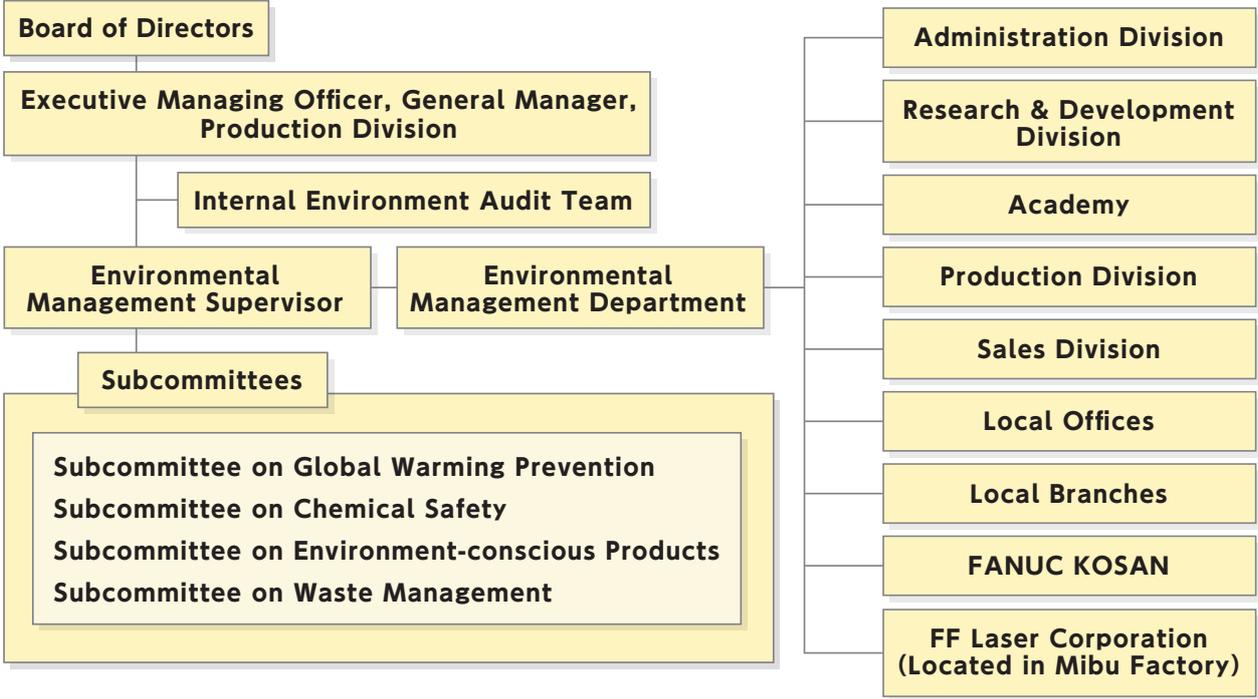
This environmental management system applies to every FANUC site in Japan, and also to the employees, factories, premises, buildings, facilities, corporate activities and environmental conservation activities related to the products and services offered by FANUC’s domestic group companies.

◆ Scope of Application of Environmental Management System



◆ Organization and Structure

With the Executive Managing Officer and General Manager, Production Division serving as the chair, we hold ISO14001 meetings once a year, consisting of representatives of related divisions, to determine activity plans and review activities. Important matters at ISO14001 meetings are reported to the Board of Directors.



Internal Environmental Audit

FANUC conducts internal environmental audits of all divisions every year. The purpose of these audits is to confirm that the environmental management system conforms to ISO14001 standards and is being appropriately implemented and maintained. To ensure objectivity and fairness, the audits are performed by auditors selected from divisions other than those being audited.

In cases where nonconformities are discovered in an internal environmental audit, corrective measures are implemented.

Thus far, there have been no serious violations of laws or regulations, fines or civil penalties or major spillages in relation to the environment. Furthermore, no complaints have been filed regarding environmental issues.

Overview of Environmental Impact from Corporate Activities



Goals

Mid- to long-term environmental targets

Item	Mid- to long-term environmental target
Amount of electric power used	Reduce the amount used in proportion to the level of production by 5% or more of the fiscal 2015 level by fiscal 2020.
Amount of kerosene used	Change from kerosene to city gas in the Headquarters area by fiscal 2020.
Amount of waste liquid discarded	Using fiscal 2015 as reference, identify the actual amount of waste liquid discarded in proportion to the level of production by fiscal 2020. Thoroughly conduct storage management.
Amount of PRTR chemical substances used	Using fiscal 2015 as reference, identify the actual amount of PRTR chemical substances used in proportion to the level of production by fiscal 2020. Thoroughly conduct storage management.
Development of environmentally friendly products	Implement reduction in size and weight, power consumption, and number of service parts, while extending the product lifetime, etc., by establishing numeric targets for the end of fiscal 2020.

Environmental targets for fiscal 2018 and performance

Item	Environmental target for fiscal 2018	Performance
Amount of electric power used	Limit the amount used in proportion to the level of production to an increase by 15.2% from the previous fiscal year's level.	Target not achieved with a 21.9% increase from the previous fiscal year's level. 1) Saved electricity through efficient facility operation 2) Saved electricity by improving facilities and installing energy-saving equipment
Amount of kerosene used	Change from kerosene to city gas in the Headquarters area.	Target achieved. 1) In some part of the headquarters area, kerosene was replaced by city gas.

Amount of waste liquid discarded	Identify the actual amount of waste liquid discarded in proportion to the level of production. Thoroughly conduct storage management.	Target achieved. 1) Utilized oil-water separators 2) Collected cutting fluid attached to chips and reused it 3) Used mold release materials with less amount of waste liquid 4) Used long-life cutting fluid 5) Utilized distillation and regenerating equipment 6) Conducted emergency drills assuming waste liquid leakage
Amount of PRTR chemical substances used	Calculate the actual amount of PRTR chemical substances used in proportion to the level of production. Thoroughly conduct storage management.	Target achieved. 1) Used cutting fluid that does not contain N,N-dicyclohexylamine 2) Used lead-free solder 3) Used coating materials that do not contain ethylbenzene 4) Thoroughly managed storage 5) Conducted emergency drills assuming chemical substance leakage
Development of environmentally friendly products	For main products, implement reductions in size and weight, power consumption, and the number of service parts, while extending the product lifetime of those parts, etc., by establishing numeric targets for the current fiscal year.	Target achieved. 1) Reduced size and weight 2) Reduced power consumption 3) Reduced number of service parts 4) Improved the operating rates 5) Reduced hazardous substances contained in parts

Environmental target for fiscal 2019

Item	Environmental target for fiscal 2019
Amount of electric power used	The target was to reduce the power consumed in proportion to the level of production by at least 12% compared to the previous fiscal year. However, it was revised due to difficulties in achieving the target stemming from a decrease in production. From January 2020, the target is to limit power consumed in proportion to the production to an increase by not more than 11.8% compared to the previous fiscal year.
Amount of kerosene used	Change from kerosene to city gas in the Headquarters area.
Amount of waste liquid discarded	Using the previous fiscal year as reference, identify the actual amount of waste liquid discarded in proportion to the level of production. Thoroughly conduct storage management.
Amount of PRTR chemical substances used	Using the previous fiscal year as reference, identify the actual amount of PRTR chemical substances used for production as compared with the level of production. Thoroughly conduct storage management.
Development of environmentally friendly products	For the main models of individual products, implement reductions in size and weight, power consumption, and the number of service parts, while extending the product lifetime of those parts, etc., by establishing numeric targets.

Performance in Fiscal 2018

Amount of Electric Power Used

Actual Reduction in the Amount of Electric Power Used

As part of our efforts to reduce our output of greenhouse gases such as CO₂ and thus prevent global warming, we are constantly aiming to reduce the amount of electric power that we use.

The power used in proportion to the level of production in fiscal 2018 increased by 21.9% compared to the previous fiscal year's level, and we could not achieve the fiscal 2018 target.

Electric Power Reduction Measures (main measures implemented by fiscal 2018)

- 1) Some machine tools in our plants were exchanged for those incorporating auto power-off devices.
- 2) Some of the compressors in our plants were exchanged for those incorporating inverter control.
- 3) Energy-saving fluorescent lamps (with electronic ballasts) and energy-saving compressors (inverter type) were installed in new buildings.
- 4) The roofs of new buildings were changed to silver in color.
- 5) The roofs of new buildings were enhanced in heat insulation by duplicating them.
- 6) Power consumption was reduced with motion sensors.
- 7) Wind-shielding curtains were used for energy saving in air conditioning.
- 8) Measures were taken against heat emissions from compressors for energy saving.
- 9) Energy-saving measures were studied by energy-saving consultants.
- 10) Use of LED lighting was promoted.
- 11) Co-generation was promoted.

Amount of Kerosene Used

Kerosene Reduction Results

In some parts of the Headquarters area, kerosene was replaced by city gas.

As a result, we reduced the total amount of kerosene used by 4.1% compared to the previous year.

Amount of Waste Liquid Discarded and Amounts of Other Waste

Waste Liquid Reduction Results

Identified the actual amount of waste liquid discarded in fiscal 2018 in proportion to the level of production. Improved the management of waste liquid, so as to prevent environmental pollution due to spilled waste liquid.

Waste Liquid Reduction Measures (main measures implemented by fiscal 2018)

- 1) Reused separated water by introducing oil-water separators
- 2) Collected cutting fluid attached to chips and reused it.
- 3) Used mold release materials with less amount of waste liquid.
- 4) Used long-life cutting fluid.
- 5) Reused distilled water by deploying distillation and regenerating equipment.

Other Waste

Almost all waste was recycled.

We sold waste metal 27,900(t), waste plastic 36(t), and waste liquid 41(t) for recycling.

Amount of Chemical (PRTR) Substances Used

PRTR Chemical Substance Reduction Results

Identified the actual amount of PRTR chemical substances used for production in fiscal 2018 in proportion to the level of production.

Improved the management of chemical substances, so as to prevent environmental pollution due to spilled chemical substances.

PRTR Chemical Substance Reduction Measures (measures implemented by fiscal 2018)

- 1) Used cutting fluid that does not contain N,N-Dicyclohexylamine.
- 2) Replaced HCFC 141b with other materials.
- 3) Used oil not containing xylene.
- 4) Banned the use of copper salts.
- 5) Banned the use of ferric chloride.
- 6) Used lead-free solder.
- 7) Used coating material containing no ethylbenzene.

Total Chemical Substance Control

In order to implement the total field control of objects stored by divisions using chemical substances, we conducted the following inspections and remedied those defects found as a result of those inspections:

- 1) Entry of stored objects into the ledger
- 2) Name indication
- 3) Maximum quantity of dangerous objects that can be held in the storehouse
- 4) Whether storage containers are free from damage and leakage.
- 5) Whether periodic inspections are conducted.
- 6) Whether protective devices are provided.

We also conducted an emergency drill assuming chemical substance leakage.

Development of Environmentally Friendly Products

The research and development divisions evaluate the environmental impact of products, set targets and develop environmentally friendly products.

The Product Development Subcommittee under the environmental management system prepares environmental management plans, and product developments are conducted based on medium- to long-term plans and annual plans.

CNC System	<ol style="list-style-type: none"> 1) Reduction in power consumption 2) Minimizing down time 3) Hazardous chemical substance reduction
LASER	<ol style="list-style-type: none"> 1) Reduction in material consumption 2) Reduction in power consumption 3) Hazardous chemical substance reduction
ROBOT	<ol style="list-style-type: none"> 1) Reduction in number of service parts while extending product lifetime 2) Reduction in size and weight 3) Hazardous chemical substance reduction 4) Reduction in power consumption
ROBODRILL	<ol style="list-style-type: none"> 1) Reduction in number of service parts while extending their product lifetime 2) Reduction in power consumption 3) Hazardous chemical substance reduction
ROBOSHOT	<ol style="list-style-type: none"> 1) Reduction in number of service parts while extending their product lifetime 2) Reduction in power consumption 3) Hazardous chemical substance reduction
ROBOCUT	<ol style="list-style-type: none"> 1) Reduction in number of service parts while extending their product lifetime 2) Environmental load reduction after disposal 3) Hazardous chemical substance reduction

Environmental Education and Information Disclosure

To fully understand the significant environmental aspects, risks and opportunities and to minimize, control and improve the environmental load, we provide environmental training to all our employees.

New recruits, regular employees, people in charge of specific tasks, and people in charge of environmental management are educated in accordance with their respective tasks.

Climate Change

Basic Approach

FANUC is addressing climate change throughout its corporate activities. In the life cycle of products, energy is consumed not only when they are produced, but also when they are used by our customers, who should enjoy higher energy-saving benefits. FANUC has long been working for customers' energy-saving on top of reducing energy

consumption during production and transportation. In order to respond to climate change, FANUC has set medium- to long-term objectives to reduce CO₂ emissions. The objectives cover all sources of energy used for R&D and production activities, including electricity, gas and oil.

Promotion Framework

FANUC recognizes addressing climate change as an important issue, with the President & CEO designated as the person responsible for the related initiatives. Important subjects relating to climate change are

reported to the board after discussion and summarizations in our environmental management and promotion committee meetings.

Please see page 33 for details. [CLICK](#)

Climate-related Risks and Opportunities

(1) Risks related to the transition to a low-carbon economy

Type	Major risks	Main initiatives
Market/ Reputation	As majority of our shareholders is ESG-conscious, expansion of ESG related investment is likely to affect us.	We will continue to work to improve our ESG initiatives in order to enhance corporate value.
Reputation	There is a risk of lawsuit by customers who claim delayed delivery, which will be caused by likely heavy snowfall in our Headquarters Factories (Yamanashi Prefecture).	In order to disperse risks, we have developed multiple manufacturing locations in the Mibu area (Tochigi Prefecture), the Tsukuba area (Ibaraki Prefecture), and the Hayato area (Kagoshima Prefecture) in addition to our Headquarters area (Yamanashi Prefecture).

(2) Risks related to the physical impacts of climate change

Type	Major risks	Main initiatives
Acute	There is a risk that typhoons and floods will halt our service operations in the Call Center, and in delivery of maintenance components.	In order to diversify risks, we have established a new service location, Nagoya Service Center in Komaki City, Aichi Prefecture in addition to the one at Hino Branch Office (Hino City, Tokyo).
Acute	Due to the location of our Headquarters Factories (Yamanashi Prefecture) at the foot of Mt. Fuji (at an elevation of roughly 1,000 meters), there is a risk, for example, that the supply of kerosene will be cut off by heavy snowfall which may cause our factory to stop operation.	By laying connecting gas pipeline to the main line, we are switching energy from kerosene to city gas. In order to diversify risks, we have developed multiple manufacturing locations; Mibu Factory (Tochigi Prefecture), Tsukuba Factory (Ibaraki Prefecture), and Hayato Factory (Kagoshima Prefecture) in addition to our Headquarters Factories (Yamanashi Prefecture). We are also working to minimize the impact of snowfall by purchasing snowplows and constructing multilevel parking lots.

Acute	There is a risk of procurement delays of our suppliers caused by typhoons and floods.	In order to reduce procurement risk by climate change, we are studying whether our suppliers have an ability to produce in multiple locations. If not, we will urge the suppliers to have multiple sites, or procure from multiple suppliers.
Chronic	There is a risk of rising temperatures having negative impacts on our working and production environments.	Due to the cool-climate location (Yamanashi Prefecture) of our Headquarters, there used to be no needs for air-conditioning equipment in some buildings. However, as a result of recent climate change, it has become necessary to have such equipment, while considering their efficiency.

(3) Climate-related opportunities

Type	Major Opportunities	Main initiatives
Products/ Services	The transition from internal combustion engines to EVs powered by electric motors, driven by measures taken by the automobile industry to combat climate change, may have a major effect on the market environment for our main products in the FA business.	The transition to EVs is expected to expand the range of robot applications leading to an increase sales. Further, increased sales of sensors and cameras will favorably affect the sales of ROBOSHOT (electric injection molding machine). Furthermore, requirements for high-precision components (to be used in EVs), as well as demand for mold machining of such component, will result in a growth in demand for CNC along with machine tools.
Products/ Services	Environments where factory equipment are used are expected to become harsher mainly due to the rise in temperature. In addition, impact of typhoons and rising temperature may deteriorate transportation conditions. There may be a greater demand for products that are capable of coping with such conditions.	We have the ability to develop competitive products with high performance and reliability to further increase our sales even under harsh operating and transport conditions.
Products/ Services	There is a possibility of a growth in environment-conscious equipment with a long product lifetime.	With more than 260 service locations around the world, we offer maintenance services for as long our customers use the FANUC products. By providing long-term maintenance services in manufacturing sites, we are able to satisfy the needs of our customers, and expect to satisfy our customers even further.

Initiatives

FANUC is promoting energy saving in its products. There are two important initiatives, one is to conserve energy at our customers' factories using our products. The other is also to conserve the energy in our own

factories. Considering the life cycle of FANUC products, the first initiative has a far greater effect on energy-savings. Therefore, we have long been working on developing energy-efficient products.

Product Initiatives

FANUC will continue to make energy-efficient products, which will contribute to conserve energy in our customers' factories.

<p>Development of large-capacity servo motors (by adopting power regeneration system)</p>	<p>We have developed a high-precision, high-efficiency, large-capacity servo motor fully utilizing our advanced digital control system.</p> <p>In the field of industrial machines, including press machines, which require tremendous power, we have achieved energy saving by introducing this large-capacity servo motor in place of hydraulic pressure. In the servo amplifier of this servo motor, we use a power regeneration system that returns energy to the power supply when the motor decelerates. When mounted on a ROBODRILL, it reduces energy consumption by approximately 34% compared with the resistance-regeneration method. Furthermore, the adoption of new power devices has reduced energy loss of the servo drive by roughly 40%, compared with the 1995 equivalents (when installed on a ROBODRILL).</p>
<p>Power consumption monitoring function</p>	<p>By developing power-consumption-monitoring function, we have made it possible to monitor the amount of power consumed by our CNC and motors, enabling the efficient adjustment of the cycle time.</p> <p>By using the energy-saving level-selection function, we have made it possible to choose the type of operation: one that prioritizes cycle time and one that prioritizes power consumption.</p> <p>When sufficient time is available before delivery, or when the cycle time in the production line changes, this function can effectively adjust power consumption in accordance with the circumstances, therefore contributing to energy saving of the entire factory.</p>
<p>Fast Cycle-time Technology</p>	<p>This series of functions reduces cycle time. Reducing operating time contributes to reductions in both direct and indirect energy consumption (e.g., energy consumption by auxiliary equipment, such as in turning a coolant pump while the machine is running).</p>
<p>Improving the efficiency of laser electrical-optical conversion</p>	<p>Improving the electrical-optical conversion efficiency has enhanced the wall plug efficiency to 40% in fiber laser technology. This technology is four times more efficient than conventional CO₂ lasers, which have an efficiency of 10%, and is 1.3 times more efficient than conventional fiber lasers, which have an efficiency of 30%.</p>
<p>Averaging the load of power demand</p>	<p>Night operation using robots disperses peak power and curbs power consumption.</p>
<p>Reducing CO₂ emissions by reducing weight</p>	<p>We have reduced the weight per unit output of laser oscillators by half and in doing so, have reduced the amount of CO₂ emission during transportation. CO₂ lasers, with a weight per unit performance of 1,300 kg, can be replaced by fiber lasers with a performance of 600 kg (based on 6 kW machines).</p> <p>In addition, the design of the robot mechanical arms with lighter weight also reduces power consumption. For the robots with a payload of 165 kg, the Robot S-430iW in 1997 weighed 1,300 kg while the Robot R-2000iC/165F in 2013 is lighter with weight of 1,190 kg.</p>

CFC substitute-free	We replaced the cooler in the laser cabinet with a Peltier dehumidifier to attain a CFC-free environment that leads to the protection of the ozone layer. No CFCs are emitted when our customers use FANUC laser products. This also eliminates the need to hand over fluorocarbon refrigerant (for collection) at the time of disposal.
Optimal operating program	By optimizing the operating program with ROBOGUIDE, power consumption is reduced and the lifetime of the reducer is extended to reduce running costs.
Efficient robot utilization	Use of an autonomously moving, Automatic Guided Vehicle (AGV) with collaborative robots allows a single robot to work in multiple locations, improving the efficiency of robots. This reduces standby power, compared with installing multiple robots.
Automatic wire feeding device	ROBOCUT features the world's first automatic wire feeding device with the thermal wire cutting method, which accelerates the cutting process by 200% when compared with conventional model, and shortens operation time. In addition, it is equipped with the world's first automatic work thickness tracking control, which detects the thickness of the workpiece and controls cutting power to achieve 20% to 50% reduction in electric power consumption.
Improved performance with new models	Compared with the models of the previous generation (the α -iE series), the ROBOCUT α -CiA series features a better energy-saving performance index (power consumption per workpiece) of 4.4 kWh, which has improved from 4.8kWh (of the α -iE series).
Electrification of peripheral equipment	Additional axis options for ROBOSHOT can electrify hydraulically controlled peripheral equipment.

The Minister Awards of the Ministry of International Trade and Industry, Excellent Energy Saving Device Award Program by the Japan Machinery Federation (1995)

ROBOSHOT Series

The Minister Award of the Ministry of International Trade and Industry, Excellent Energy Saving Device Award Program by the Japan Machinery Federation (1998)

For our wire-cut electric discharge machines equipped with a high-speed automatic wire feeding mechanism and thick plate tracking control

ROBOCUT α Series

The Minister Award of the Ministry of International Trade and Industry (1999) in the first Global Environment Award competition

Prize of the Director General of Agency of the Natural Resources and Energy, Excellent Energy Saving Device Award Program by the Japan Machinery Federation (2003)

For our large-capacity servo system with a power regeneration feature and precision digital control and for our large-size AC Servo Motor α i Series

Approved for subsidies for the introduction of energy-saving equipment for local factories and small- and medium-sized enterprises (2014)

ROBOCUT α -CiA Series

Production Initiatives

FANUC will contribute to energy savings in our manufacturing facilities.

Streamlining the assembly process	<p>At the Hayato Factory (Kagoshima Prefecture), cleaning was previously carried out using an ultrasonic cleaning device during the assembly process of flexible cables. However, this process was eliminated by reconsidering the necessity of cleaning in order to reduce annual power consumption (by 158,976 kWh).</p>
Introduction of cogeneration equipment	<p>We have introduced cogeneration systems at our new Mibu Factory (Tochigi Prefecture) and Tsukuba Factory (Ibaraki Prefecture) to actively utilize waste heat. They have contributed to reduce the amount of electricity purchased and fuel consumption used for gas-fired cold/hot water generators, which eventually reduce CO₂ emissions.</p> <p>The annual CO₂ emissions at the Mibu Factory (Tochigi Prefecture) are estimated to have been reduced by 1,864 tCO₂e. Because the Tsukuba Factory (Ibaraki Prefecture) has been in operation for less than one year, results for the Tsukuba Factory are omitted.</p>
Consideration for the environment by switching to city gas	<p>By switching the fuel (for boilers in the Headquarters area) from kerosene to city gas, we are continuously aiming to reduce CO₂ emissions by 25%, and eventually to promote our BCP. At the same time, we are working to eliminate kerosene tanks at during this transition in order to reduce the risk of soil contamination.</p>

Logistics Initiatives

FANUC contributes to saving energy required for manufacturing products.

Use of truck return trips	<p>The trucks that deliver CNC systems to machine tool builders in Japan are normally empty on their return trips. We are notifying suppliers of the availability of such empty trucks so that they can use them for parts deliveries, thereby improving the efficiency of truck operations (reducing the number of trucks) and reducing CO₂ emissions.</p>
Container packing at our factories	<p>In the past CNC systems for export were transported by truck from FANUC to a port warehouse, and were packed into containers in a port area. We have changed the procedure and have installed equipment to ship containers from FANUC factories, so that they can be sent directly to the packing area. This has made it possible to reduce the number of trucks by improving the container loading rate and by replacing trucks with trailers, which have a larger loading capacity.</p>
Improving on-site logistics efficiency	<p>Local roads surrounding our Headquarters area used to be congested by trucks to accommodate on-site logistics among the many factory buildings. By improving private on-site roads, we have reduced the use of the local roads, secured traffic routes, and facilitated logistics. In the Mibu Factory, all factories are connected by conveyors, eliminating truck-based transportation within the premises. Tsukuba Factory has eliminated the use of trucks for transport within its premises by increasing the size of the building, and connecting all robot production processes by conveyors within the same building.</p>

Initiatives at Non-production Sites

Installation of solar power generation equipment	Solar power generation equipment has been installed in some of the buildings in our Headquarters area. In fiscal year 2018, a total of 38.81 MWh was generated from solar power.
LED lighting	We have converted mercury lamps and general-purpose fluorescent lamps (used in our factories and offices) to LEDs, and also replaced ceiling lights, guidance lights, and emergency lights with LED lighting. In addition to the use of LEDs, motion detectors have been installed in areas where people are not always present, such as corridors and toilets, in order to prevent unnecessary lighting.
Cogeneration system	We have introduced a cogeneration system in our Headquarters area, using waste heat for the welfare facilities in company housing and dormitories, as well as for the hot water supply and heating at FANUC ACADEMY.
Building renewal	At our Osaka Branch, we have renovated the entire building, with only the framework left in place, and introduced energy-saving air-conditioners, LED lighting, and motion detectors. We have reduced air-conditioning power consumption by 60% and total power consumption by 40%.
Demand response	In response to a request from the power supply company, we conduct, so-called Negawatt Transactions, to reduce power consumption when the power supply and demand are expected to be tight.
IT infrastructure	By turning off PC monitors during breaks, estimated annual power savings is expected to total 28,800 kWh.

Collaboration with Stakeholders

Collaboration with suppliers	We collect information on climate change from a total of 13 companies, composed of three manufacturing subsidiaries and 10 of our partner suppliers, whose sales to FANUC exceed 30%. We survey suppliers regarding specific items such as volumes of fossil fuel consumption, electricity consumption, and industrial waste, and provide advice as needed.
Collaboration with customers	We conduct training for our customers in our training facility, FANUC ACADEMY, to explain the benefit of energy-saving to be achieved by using our products. Through this training, we also explain how to operate each product, drawing the customers' attention to energy conservation.
Collaboration with industry associations	We have participated in the deliberations of the Japan Machine Tool Builders' Association, the Japan Robot Association, and the Japan Society of Industrial Machinery Manufacturers to encourage setting of the industry target. Through these associations, we are making proposals to and cooperating with the Ministry of the Environment and the Ministry of Economy, Trade and Industry on climate change.

Resources and Waste

Basic Approach

Under the vision of “leaving nature and resources to posterity”, FANUC promotes the efficient use of resources, and proper disposal and reduction of waste.

We will provide our lifetime maintenance for our products as long as they are used by our customers. As our customers do not need to discard older used products or purchase new models due to such

maintenance service, they will eventually reduce wastes and enjoy effective use of resources.

In addition, we reduce waste and make effective use of resources in every aspect of our business activities, including development and packaging of our products and reuse of materials, as well as thoroughly managing the use of chemical substances.

Promotion Framework

FANUC recognizes addressing resource and waste management as an important issue, with the President & CEO designated as the person responsible for the related initiatives.

Important subjects relating to this management are reported to the board after discussions and summarizations in our environmental management and promotion committee meetings.

Please see page 33 for details. [CLICK](#)

Initiatives

Thorough management of chemical substances

FANUC uses chemical substances as raw materials in production process, but we are working to reduce the use of substances to the absolute minimum. To ensure that our customers around the world can

safely use FANUC products, we are working to comply with chemical substance management regulations in each country and region, and even voluntarily comply with stricter regulations.

Monitoring and managing PRTR chemical substances	We have reduced our use of chemical substances in accordance with the PRTR Act. As our measures have proven to be effective and the amount that can be reduced has become limited, since 2016, we have calculated the usage in proportion to production, rather than to the absolute amount.
Compliance with higher safety standards	Even though FANUC products are not subject to the RoHS Directive (Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical Equipment), FANUC is voluntarily working to eliminate the use of hazardous substances. In new designs, all materials, including auxiliary materials used in manufacturing, are below the threshold dictated in the RoHS2 Directive, and we are in the process of replacing parts in existing designs. In addition, we also support various safety standards such as CE marking certification, UL Standards, and GB standards, as required.

Product Initiatives

Lifetime maintenance	Even for discontinued models, we provide lifetime maintenance as long as they are used by customers. As a result, FANUC products can be used at economical cost for several decades, and therefore generate minimum waste. (Also see page 19)
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Benefits of high-performance products	ROBOSHOT's high molding performance reduces plastic molding defects, and its function to support the automation of production setup will reduce downtime between production lots, and reduces losses of materials. In injection molding, we are improving stability even when using of recycled materials from scraps and waste.
By designing products in small size, we reduce weight and number of components	We have reduced the use of resources by designing products in small sizes and with fewer components. We apply modular designs to standardize parts, thereby reducing the variety of procured components, as well as maintenance components.
Proper maintenance	Grease can be replaced at the most appropriate time with the intelligent grease change reminder function. The amount of grease waste is reduced gradually.

Production Initiatives

Reducing water-soluble cutting fluid	By introducing oil-water separators, we have gradually improved our throughput, reducing water-soluble cutting fluid by 10%, compared with the previous year.
Reducing failure rates	We have made efforts to optimize solder printing settings and to reduce scratch defects. It has improved the failure rate of CNC equipment from 0.0073 to 0.0066 per unit.
Changing our casting method	By changing the casting method of the arm of high-performance ROBODRILLS from a wooden die to a metal die, we have reduced cutting expenses. This has also reduced the cycle time (per machine) from 18 minutes to 16 minutes.

Initiatives in Packaging Materials

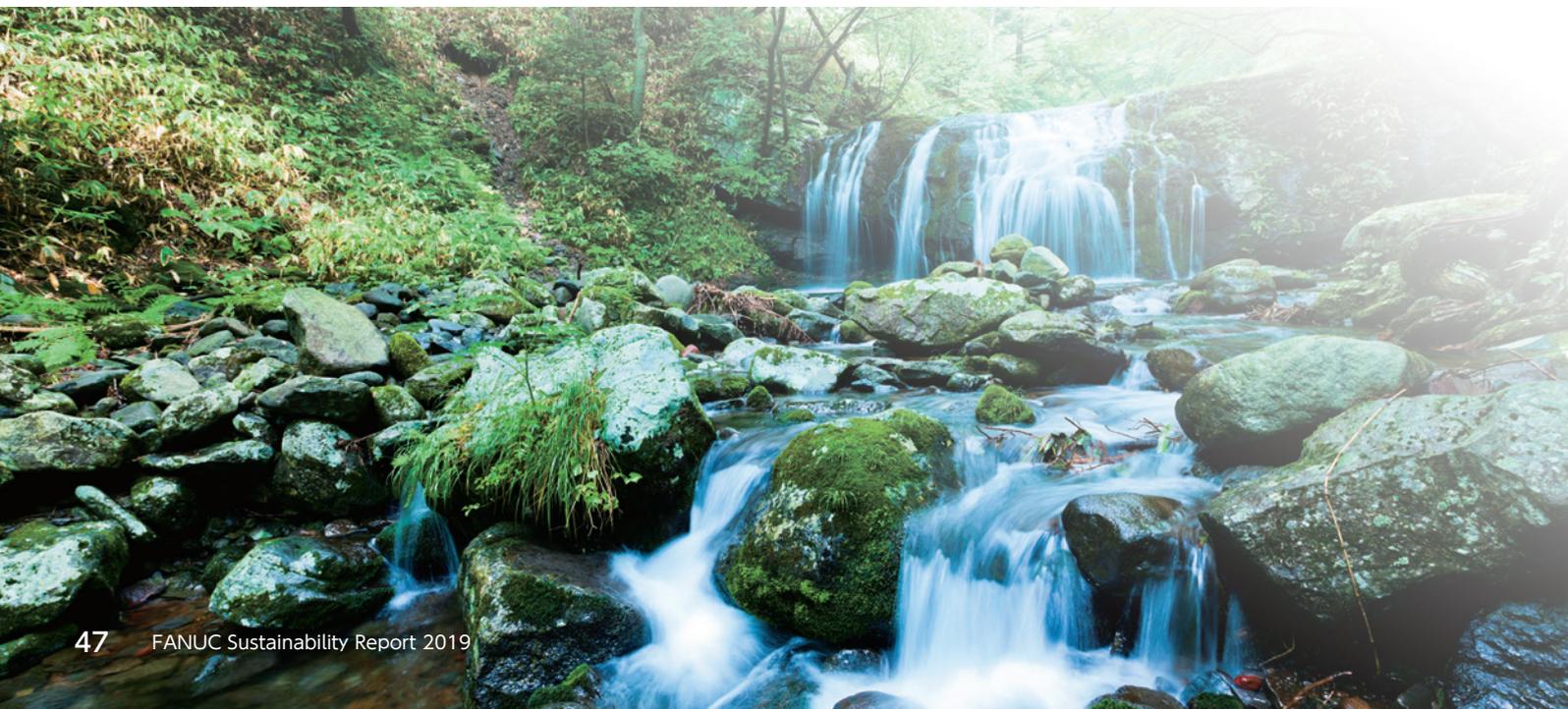
Significant reduction in the use of steel cases	In translating products in containers directly from a port to a warehouse, we used to pack ROBOTS and ROBOMACHINES in steel cases. However, we are now able to significantly reduce the use of steel cases by using the containers as the packing cases. It means that we are directly packing ROBOTS and ROBOMACHINES onto containers as much as possible.
Reducing weight and increasing density	We have changed the shipping packaging of SCARA Robots from steel skids to cardboard packaging to improve transport efficiency.
Saving resources	We have changed the shape of steel skids used in transporting, while maintaining their strength, to reduce the amount of steel used.
Reducing use of cardboard	We have stopped using cardboard in the delivery of eyebolts from suppliers, and introduced reusable mesh pallets. This has led to an estimated annual waste reduction (paper waste) of 120 kg.
Adopting reusable shipping boxes	We have stopped using packing materials in the delivery of sheet metal covers, and adopted reusable shipping boxes with interior padding. This has led to an estimated annual waste reduction (paper waste) of 99.6 kg.

Initiatives for Reuse

Transport packaging, pallets	<p>We have changed shapes of the cardboard (boxes used in delivering CNC systems to machine tool builders in Japan) to be reusable and by arranging delivery trucks to collect the empty cardboard boxes to inspect them and repair for reuse.</p> <p>We also send the steel skids, which are the packing material used when importing castings, back to the foundry for reuse.</p>
Waste liquid	<p>We reduce the amount of waste liquid from machine tools by using waste-liquid-recycling devices. This has resulted in an estimated annual reduction of waste liquid of 852 t.</p> <p>At our Headquarters Factories, Tsukuba Factory, and Mibu Factory, we are promoting the reduction of waste liquid by using long-life cutting fluids.</p> <p>In addition, at our Headquarters Factories and Tsukuba Factory, we are reducing waste liquid by reusing the cutting fluid adhered to chips (metal chips) generated during machining.</p> <p>Die-casting factories in Headquarters and Mibu are promoting the reduction of waste liquid by using mold release materials.</p>
Chips and cutting tools	<p>We hand over chips produced during cutting at our factories, as well as cutting tools that have become unusable due to heavy wear to recyclers, so that they can be reused as raw materials.</p>

Initiatives in Offices

Reduction of paper consumption	<p>We reduce the use of paper by digitizing company documents.</p>
LED lighting	<p>We promote the use of LED lighting, which does not use the mercury, lead, or cadmium contained in fluorescent lamps, etc., thereby facilitating reduction in disposal of lighting.</p>



Water

Basic Approach

FANUC Headquarters is located in the rich natural environment adjacent to the Fuji-Hakone-Izu National Park, and we use the clean and abundant groundwater of Mt. Fuji as a water source. The groundwater pumped from 80 meters below is stable in terms of both volume and quality throughout the year. We can say that FANUC is blessed with water resources, and has almost no risk of water shortages.

However, we are well conscious of the fact that, there are water shortages in other parts of the world, and the

United Nations Environment Programme has reported that water shortages will become even more severe in some regions by 2025.

FANUC, therefore is working to conserve water resources, such as through daily water recycling, effluent purification treatment, and water quality management.

In order to discharge higher quality wastewater, we comply with regulated amounts of water pollutants, and monitor the water quality through monthly inspections.

Promotion Framework

FANUC recognizes addressing the conservation of water resources as an important issue, with the President & CEO designated as the person responsible for the related initiatives.

Important subjects relating to these resource conservation issues are reported to the board after discussions and summarizations in our environmental management and promotion committee meetings.

Please see page 33 for details. [CLICK](#)

Initiatives

Initiatives in Our Headquarters Area

25 factories are located in FANUC Headquarters, all of which use groundwater when required for production. In addition, our factories reuse the water they have used for production for cooling and other purposes. When discharging sewage, we conduct partial

purification treatments to adjust the pH value, and continuously monitor our water treatment facilities. In addition, we conduct monthly water quality inspections to ensure high effluent standards.

Reusing Water

Cyclical use of cooling water	We circulate and reuse the cooling water that is used to cool the production equipment in the die-cast factory at Headquarters.
Reusing wastewater	In our ROBOT factory No. 1 at Headquarters, 41% of wastewater is reused by utilizing oil-water separators. In our servo motor parts machining factories No. 1 and 2 at Headquarters, we reuse 11% of wastewater by making full use of distillation and regeneration equipment. In the future, our new factory (servo motor parts machining factory No. 3) is expected to be able to reuse nearly 80% of wastewater by increasing the efficiency of wastewater use.
Reusing machining liquid	In our ROBOCUT factory at Headquarters, we plan to introduce a new machining liquid tank dedicated to testing, in order to enable 90% reuse of the machining liquid (water) for testing during manufacturing. (Completed in December 2019)

Collaboration with Suppliers

Because our suppliers use water resources in the process of cooling castings, indirect use of water resources is also an important issue.

FANUC, therefore, are asking suppliers to adopt our CSR Procurement Policy, and to promote the efficient use and cyclical use of water resources.

Biodiversity

Basic Approach

Following on our basic vision of “leaving nature and resources to posterity”. FANUC is striving to maintain biodiversity, by preserving the stunning natural environment of 1.78 million square meters in which our Headquarters is located, adjacent to the Fuji-Hakone-Izu National Park.

Our Headquarters area is home to a variety of trees,

including native forests, as well as artificially planted Japanese larches and red pines, making it a treasure trove of wild birds, plants, and flowers. We will continue to take care of the forests and plant new trees, in order to protect the richness of the land around Mt. Fuji, a World Heritage Site.

Initiatives

Forest Conservation Activities

FANUC Headquarters is located in a stunning natural environment neighboring the Fuji-Hakone-Izu National Park. While the greening rate is specified in this area, we are striving to create a FANUC Forest that is more abundant than the designated greening rate. We maintain our forest on a daily basis, and as a result, the trees and flowers adorn the changing seasons, and various wild birds can be seen here.

When constructing factories and other buildings, we select locations with as few trees as possible, in order to minimize deforestation.

Furthermore, our use of land takes advantage of the

natural terrain, and we make plans that maximize conservation of the environment, such as by ensuring that the heights of buildings do not exceed the height of the surrounding trees.

Since parking lots require large areas of flat land, we are currently building multilevel parking lots in order to maintain the greening rate. In the construction of parking lots started in 2016, we have completed seven parking lots, comprising a total of 92,250 square meters of floor space and 3,393 parking spaces as of 2019. These multilevel parking lots have preserved 65,300 square meters of green space.

100-year Forest Restoration Plan

Demand for timber during the wartime regime and the period of rapid economic growth encouraged the planting of conifers, so most tree plantations are now coniferous. Parts of our Headquarters are also coniferous forests that were artificially planted. Our basic policy for green space management in the FANUC Headquarters is to convert these existing planted coniferous forests into a broad-leaved forest, which is better suited to this area, over the long-term. The current coniferous forests have been planted for many years with fast-growing red pines, larches, firs, etc., which are used as sand protection forests and to satisfy demand for timber. Our aim is to convert these artificially planted coniferous forests into rich forests

where small birds and animals can coexist, by changing them into evergreen broad-leaved trees and broad-leaved forests suitable for the surrounding natural vegetation that blossom, bear fruit, and drop leaves.

In order to steadily achieve this goal, FANUC is cooperating with the Yamanashi Forestry and Forest Products Research Institute. We began implementing our plan to regenerate a forest that is suitable for the natural ecosystem of the area in 2015, and have planted trees since 2016. Because it is difficult for the trees to survive, we are engaging in the effort over the long term.

Conservation of Rare Plant Species

In the premises of our Mibu Factory in Tochigi, the rare plant *Lecanorchis suginoana*, which appears in the Red Data Book Tochigi 2018, compiled by Tochigi Prefecture, has been found growing. The entire area can be said to constitute a valuable natural

environment.

FANUC complies with environmental laws and regulations, and cooperates with the environmental surveys conducted by Tochigi Prefecture.

Governance

Overview

FANUC recognizes that a company will last forever and be sound with “strict preciseness” and the corruption of an organization and downfall of a company start from a lack of “transparency”. Based on this basic principle of strict preciseness and transparency, FANUC has

established a governance system (internal control system), and is striving to fulfill its responsibilities to stakeholders, including customers, employees, shareholders, suppliers, and local communities, and to achieve sustainable growth as a company.

Policies

FANUC has established various governance policies and is promoting these policies throughout the Company.

FANUC Code of Conduct

https://www.fanuc.co.jp/en/ir/code/pdf/codeofconduct_e.pdf 

Human Rights Policy

https://www.fanuc.co.jp/en/ir/esg/social/pdf/humanrightspolicy_e.pdf 

CSR Procurement Policy

https://www.fanuc.co.jp/en/ir/esg/social/pdf/csrprocurementpolicy_e.pdf 

Information Security Policy

Guidelines for Restricting Contact with Competitors

Promotion Framework

With regard to governance (internal control system), the Compliance Committee, which is chaired by the Representative Director, has been established to deliberate whistleblowing cases, establish

countermeasures, and give advice to parties involved. For important matters, the details of each case, along with countermeasures are reported to the Board of Directors and the President & CEO.

Corporate Governance

Policies

In order for the Board of Directors to fulfill its monitoring functions in sync with the field, Executive Directors shall disclose and explain accurate and timely information from worksites to the Board of Directors. The Board of Directors shall not restrict itself to theoretical discussions, but rather, shall strive to hold discussions that are constructive. In addition, FANUC has established the Nomination and

Remuneration Committee, a majority of which comprises Independent Outside Directors, and is chaired by an Independent Outside Director. By increasing the objectivity and transparency of the appointment and evaluation of Directors, this committee ensures the strict preciseness and transparency of monitoring functions of management (the executive functions).

Promotion Framework and Initiatives

FANUC is a company with an Audit & Supervisory Board. We place importance on the opinions of the Audit & Supervisory Board Members at the Board of Directors, while keeping the Directors (the monitoring functions of management) and the management side (executive functions) independent from each other. Three of the eleven members of the Board of Directors are Independent Outside Directors. In addition, the Nomination and Remuneration Committee, the majority of which is comprised of Independent Outside Directors, and is chaired by an Independent Outside Director, has been established to improve the objectivity and transparency of the monitoring of the executive functions. Evaluation of the effectiveness of the Board of

Directors is conducted twice per year at meetings where opinions are exchanged, by receiving opinions and evaluations from Directors (especially Independent Outside Directors) and Audit & Supervisory Board Members. In addition, annual questionnaire surveys, are conducted to find necessary topics related to the evaluation. The Board of Directors deliberates on these topics, as appropriate, and discloses the details of these deliberations in the corporate governance report. Last year, there was a particularly lively exchange of views on strengthening internal governance as well as corporate governance. As a result, on November 1, 2019, a part of the functions of the Legal Department was made independent, to become the new Governance Department.

The system for Directors' remuneration, etc. is as follows.

The upper limit of the total amount was set at the following total amount by resolution of the 37th Ordinary General Meeting of Shareholders of June 28, 2006.

- 1) Fixed annual aggregate ceiling amount of ¥1 billion
- 2) Variable aggregate ceiling amount, which is set by multiplication of the consolidated net profit of each half year and 1/25 of the dividend payout ratio (%). (It should be noted, however that the variable amount for the first half of the fiscal year shall be paid in the second half of the relevant fiscal year and that for the second half shall be paid in the first half of following the fiscal year.)

Note: The payout ratio (%) shall be calculated in accordance with the following formula for each half year:

Payout ratio for the first half of the fiscal year (April to September)

= Amount of interim dividend per share for the said period
÷ Consolidated net income per share for the said period × 100

Payout ratio for the second half of the fiscal year (October to March next year)

= Amount of year-end dividend per share for the said fiscal year
÷ (Consolidated net income per share for the said fiscal year
– consolidated net income per share for the first half of the said fiscal year) × 100

The upper limit of the total annual remuneration, etc. for Audit & Supervisory Board Members was set at ¥250 million by resolution of the 45th Ordinary General Meeting of Shareholders of June 27, 2014.

The environmental issues, the target goals, implementation status, and achievement evaluations are reported to the Board of Directors, and they are subject to evaluations as one of the important subject for monitoring by the Board of Directors.

In addition, we have concluded an agreement with a specialized consulting firm since 2019 in an aim to improve corporate-wide ESG efforts.

Goals

The Board of Directors aims to realize the following activities in the future.

- Promote the diversity of the Board of Directors, primarily by appointing female Directors.
- Increase the number of Independent Outside Directors to at least one-third of the entire Board.
- Promote the sharing of management information with Independent Outside Directors, in order to stimulate the discussion in the Board meetings.

Compliance

Promotion Framework and Initiatives

Based on the FANUC Code of Conduct, which is derived from the basic principle of “strict preciseness and transparency”, we have established basic rules for compliance, including anti-corruption policy. In addition, we have established detailed rules for compliance, and deployed them internally

through our “Human Rights Policy”, “CSR Procurement Policy”, “Guidelines for Restricting Contact with Competitors” pursuant to the Antimonopoly Act, “Trade Secret Management Rules”, “Personal Information Management Rules”, “Rules on Preventing Insider Trading”, etc.

Whistleblowing System

FANUC has established a system under which officers and employees of FANUC and its domestic subsidiaries can make whistleblowing reports to FANUC’s internal and external contacts through hotlines. We are also gradually expanding those hotlines to overseas group companies so that officers and employees may report directly to FANUC Headquarters. We have established the “Whistleblowing System Operation Rules” for the above-mentioned reports in Japan and abroad, in order to ensure the protection of the whistleblowers.

Compliance

Issues related to compliance are discussed by the Compliance Committee, which is chaired by the Representative Director, and important issues are always reported to the Board of Directors and the President & CEO. In addition, the Management Meeting, which mainly comprised of the heads of each business divisions, deliberates also on these issues. Furthermore, the latest cases of whistleblowing is reported to the Board of Directors at least twice a year, so that adequate deliberations are made on related compliance issues as necessary.

Response to Various Risks

Risk management officers shall establish rules and guidelines, conduct training, and create and distribute manuals and other matters regarding corporate risks mainly related to legal compliance, environment, disasters, quality, and export control, etc. When a new risk emerges, a risk management officer shall be promptly assigned to deal with the risk. In addition, the Internal Audit Department, which reports directly to the Representative Director, conducts risk management audits regarding the status of affected business execution.

Cyber Security

Business risks are deliberated by the Board of Directors, as appropriate. In particular, cyber security, which has become an increased threat in recent years, has been identified as an important issue, and, therefore, both a Chief Information Security Officer (CISO) and a Chief Information Officer (CIO) have been appointed. We are also focusing our efforts to ensure an adequate and appropriate response to corporate risks, such as by making a start of operation of a security monitoring team (security operation center, or SOC) under the newly established Cyber Security Committee.

Goals

By 2020, FANUC plans to expand the current whistleblowing system to overseas group companies, clarify and disclose our anti-corruption policies, and

enhance corporate business risk assessment, among others.

Some of the Achievements

In 2019, FANUC formulated and disclosed our Human Rights Policy and CSR Procurement Policy. As of 2020, we have also formulated new policies including

Guidelines for Restricting Contact with Competitors, pursuant to the Antimonopoly Act.

DATA BOOK

ESG DATA

Environment

Policies

Environmental Policy

<https://www.fanuc.co.jp/en/ir/esg/environment/policy.html> 

Climate Change



		Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)	
GHG Emissions * There is no other Greenhouse Gas (GHG) emission other than CO ₂ .	GHG Scope 1	FANUC CORPORATION	t-CO ₂	6,521.60	7,189.30	7,864.40	14,254.00	25,213.20	305-1	
	GHG Scope 2			88,981.50	80,915.50	95,515.80	112,524.00	108,563.60	305-2	
	GHG Scope 3			—						
	1. Purchased goods and services			—	—	—	—	684,585.69	305-3	
	2. Capital goods			—	—	—	—	400,649.06	305-3	
	3. Fuel-and-energy-related activities (not included in Scope 1 or 2)			—	—	—	—	13,703.90	305-3	
	4. Upstream transportation and distribution			—	—	—	—	4,917,558.69	305-3	
	5. Waste generated in operations			—	—	—	—	2,597.74	305-3	
	6. Business travel			—	—	—	—	494.26	305-3	
7. Employee commuting	—	—	—	—	2,401.20	305-3				

		Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
GHG Emissions *There is no other Greenhouse Gas (GHG) emission other than CO ₂ .	8. Upstream leased assets	FANUC CORPORATION	t-CO ₂	—	—	—	—	0.00	305-3
	9. Downstream transportation and distribution			—	—	—	—	4,386,565.85	305-3
	10. Processing of sold products			—	—	—	—	0.00	305-3
	11. Use of sold products			—	—	—	—	1,297,612.80	305-3
	12. End of life treatment of sold products			—	—	—	—	10.31	305-3
	13. Downstream leased assets			—	—	—	—	0.00	305-3
	14. Franchises			—	—	—	—	0.00	305-3
	15. Investments			—	—	—	—	0.00	305-3
	Total for categories 1 through 15			—	—	—	—	11,706,179.50	305-3
GHG Emissions per Consolidated sales (million yen)		—	—	0.13	0.14	0.19	0.17	0.21	305-4
HFC and HCFC Emissions	Direct HFC Emissions	FANUC CORPORATION	t-CO ₂	—	33.00	223.70	281.30	548.70	305-6
	Direct HCFC Emissions			2.27	2.09	1.70	1.34	2.13	305-6
	Total			2.27	35.09	225.40	282.64	550.83	305-6
Energy Consumption	Electricity Used	FANUC CORPORATION	GJ	1,699,686.40	1,620,374.25	1,937,410.28	2,449,918.13	2,598,471.13	302-1
			Thousands of kWh	170,480.08	162,525.00	194,324.00	245,729.00	260,629.00	302-1
	Renewable Energy Used		GJ	377.88	374.36	360.00	394.77	386.97	302-1
			Thousands of kWh	37.90	37.55	36.11	39.60	38.81	302-1
	City Gas Used		GJ	9,618.43	5,175.00	12,762.59	142,793.33	396,942.53	302-1
	LPG Used		GJ	11.37	5,940.60	10,768.53	14,060.07	12,641.78	—
	Diesel fuel Used		GJ	4,672.54	2,224.30	1,998.10	2,488.20	6,107.40	302-1
	Kerosene Used		GJ	77,451.68	89,070.90	85,400.90	78,281.10	51,783.70	—
	Heavy Oil A Used		GJ	534.50	547.40	430.10	39.10	0.00	—
Total	GJ	1,792,352.78	1,723,706.81	2,049,130.50	2,687,974.69	3,066,333.51	302-1		

	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Energy Consumption per Consolidated sales (million yen)	FANUC CORPORATION	—	2.46	2.76	3.82	3.70	4.82	302-3
Total Amount of Renewable Energy Purchased or Generated		Thousands of kWh	37.90	37.55	36.11	39.60	38.81	302-1
ISO 14001 Certified Sites	FANUC CORPORATION, FANUC KOSAN LTD	Sites	31	31	31	32	33	—

Resources and Waste



	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Raw Materials Used (Resources for Packaging)	FANUC CORPORATION	t	2,402.6	2,255.2	2,081.1	2,815.3	2,980.6	301-1
Total Waste		t	2,750.0	2,324.1	2,304.6	3,067.4	3,143.6	306-2
Waste Recycled		t	1,760.5	1,387.9	1,481.6	1,882.6	1,984.1	306-2
% of Recycled Material		%	64.0	59.7	64.3	61.4	63.1	301-2
Waste Sent to Landfills		t	19.0	16.5	16.6	22.1	23.8	306-2
Hazardous Waste		t	0.9	0.1	0.0	5.0	48.52※	306-4
NOx Emissions		t	0.0	0.0	0.0	0.0	0.0	305-7
SOx Emissions		t	0.0	0.0	0.0	0.0	0.0	305-7
VOC Emissions		t	36.5	52.0	62.5	71.7	62.9	305-7

※Due to the disposal of low concentration PCB (polychlorinated biphenyl) wastes.

Water



	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Total Water Used	FANUC CORPORATION (Headquarters Area, Mibu Area, Tsukuba Area, Hayato Area)	Thousands of kWh	689.275	654.511	735.25	874.868	879.793	303-3
Total Wastewater	FANUC CORPORATION (Headquarters Area, Mibu Area, Tsukuba Area, Hayato Area)	Thousands of kWh	400.555	445.098	477.976	507.169	533.437	303-4

Compliance

	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Number of Environmental Fines and Penalties	FANUC CORPORATION	Violations	0	0	0	0	0	307-1
Total Cost of Environmental Fines		Yen	0	0	0	0	0	307-1

Society

Policies

Human Rights Policy

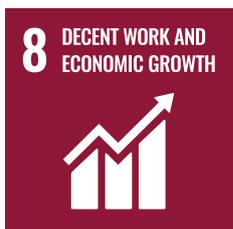
<https://www.fanuc.co.jp/en/ir/esg/social/humanright.html> 

Customer



	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Number of trainees at FANUC ACADEMY	FANUC CORPORATION	Persons	3,429	4,195	4,347	4,151	5,186	404-2
Satisfaction rating on trainees at FANUC ACADEMY		out of 5	4.33	4.4	4.44	4.47	4.51	—

Employees



		Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Number of Employees	Women	FANUC CORPORATION	Persons	194	221	232	255	275	102-8
	Men		Persons	2,570	2,821	3,014	3,240	3,527	102-8
	Total		Persons	2,764	3,042	3,246	3,495	3,802	102-8
	consolidated basis	FANUC Group	Persons	5,840	6,327	6,738	7,163	7,866	102-8
Average Number of Consecutive Years Served	Women	FANUC CORPORATION	Year	16.5	14.7	14.8	13.9	13.5	102-8
	Men		Year	17.8	16.6	15.9	15.2	14.3	102-8
	Total		Year	17.7	16.5	15.8	15.1	14.3	102-8
Average Age of Employees	Women	FANUC CORPORATION	Age	44.5	43.5	43.2	42.4	42.2	102-8
	Men		Age	43.7	42.9	42.1	41.5	40.7	102-8
	Total		Age	43.7	42.9	42.2	41.5	40.8	102-8
Employee Turnover Rate	Full-Time Staff Voluntary Turnover Rate Excluding Retirements		%	0.6	0.5	0.7	0.4	0.9	401-1

		Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Number of Newly Hired Employees	Women	FANUC CORPORATION	Persons	22	34	15	27	25	401-1
	Men		Persons	147	295	250	295	362	401-1
	Total		Persons	169	329	265	322	387	401-1
% of Female Employees in New Hires			%	13.0	10.3	5.7	8.4	6.5	401-1
Female Share of Total Workforce			%	7.0	7.3	7.1	7.3	7.2	102-8
Number of Females in Management Positions			Persons	10	13	13	9	5	102-8
% of Females in Management Positions			%	2.2	2.7	2.4	1.6	0.9	102-8
Number of Females in executive employees			Persons	30	34	38	38	44	102-8
% of Females in executive employees			%	2.5	2.7	2.9	2.8	3.1	102-8
Paid Maternity Leave	Women		Persons	10	13	13	15	16	401-3
	Men		Persons	0	0	0	0	0	401-3
	Total		Persons	10	13	13	15	16	401-3
Shortened Working Hours for Childbirth or Childcare Purposes	Women		Persons	12	13	19	20	24	401-3
	Men		Persons	0	0	0	0	0	401-3
	Total		Persons	12	13	19	20	24	401-3
% of Disabled in Workforce			%	1.96	2.10	2.09	2.10	2.26	102-8
Median Compensation of Employees			Millions of Yen	12.7	15.7	13.1	13.4	13.6	102-8
% of Employees Unionized ※ Employees Unionized/Employees (Including contract employees)			%	34.1	35.6	38.2	38.2	40.1	—
OHSAS 18001 Certification Sites			Sites	0	0	0	0	0	—
Injuries from Occupational Accidents			Persons	—	—	—	25	12	403-2
Number of Work-Related Fatalities		Persons	0	0	0	0	0	403-2	
Lost time injury (LTI) frequency rate ※1		—	—	—	—	2.07	1.01	403-2	
Occupational Illness Frequency Rate ※2		—	0	0	0	0	0	403-2	
Total Donation Amounts		Millions of Yen	125	295	343	164	92	203-1	

※1 total number of lost time injury events ÷ Total working hours × 1,000,000

※2 Number of lost-day occupational illness cases ÷ Total working hours × 1,000,000

Corporate Governance

FANUC Code of Conduct

<https://www.fanuc.co.jp/en/ir/code/index.html> 

		Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Number of Directors	Number of Internal Directors	FANUC CORPORATION	Members	11	11	10	10	10	102-22
	Number of Outside Directors		Members	1	3	3	3	3	102-22
	Total		Members	12	14	13	13	13	102-22
Number of Board Meetings			Times	13	14	13	14	12	102-28
Number of Directors Attending Less Than 75% of Board Meetings			Members	0	0	0	0	0	102-28
Number of Audit & Supervisory Board Members	Number of Internal Audit & Supervisory Board Members		Members	2	2	2	2	2	102-22
	Number of Outside Audit & Supervisory Board Members		Members	3	3	3	3	3	102-22
	Total		Members	5	5	5	5	5	102-22
Number of Audit Committee Meetings			Times	3	5	3	4	4	102-28
Number of Auditors Attending Less Than 75% of Board Meetings			%	0	0	0	0	0	102-28
Total amount of Executive remuneration※	Internal Directors (performance-based pay) (fixed compensation)	Millions of Yen	2,596 (1,686) (910)	3,731 (2,838) (893)	2,791 (1,859) (932)	3,124 (2,181) (943)	3,474 (2,530) (944)	102-35	
	Internal Audit & Supervisory Board Members	Millions of Yen	161	162	163	162	162	102-35	
	Outside Directors and Outside Audit & Supervisory Board Members	Millions of Yen	63	99	108	108	108	102-35	

Regarding director remuneration, the amount for internal director consists of fixed compensation and performance-based pay, and Internal Audit & Supervisory Board Members and Outside Directors and Outside Audit & Supervisory Board Members receive appropriate fixed compensation from the perspective of ensuring independence, both of which are decided by the Board of Directors within the framework below agreed upon at the shareholders' meeting.

The upper limit of the total annual remuneration, etc. for Directors was set at the following total amount by resolution of the 37th Ordinary General Meeting of Shareholders of June 28, 2006.

(1) Fixed compensation framework with annual amount not exceeding ¥1 billion

(2) Variable compensation framework, calculated by multiplying the consolidated net profit for every six-month period at a rate of 1/25th of the dividend payout ratio.

(Note that the first-half amount will be paid in the second half, and the second-half amount will be paid in the first half of the following fiscal year.)

Note: Dividend ratio (%) is calculated biannually as below

Dividend payout ratio for first half (April through September of the same year) = Interim dividend per share / Consolidated interim earnings per share x 100

Dividend payout ratio for second half (October to March of the following year) = Year-end dividend per share / (Consolidated earnings per share for full year – consolidated interim earnings per share) x 100

The upper limit of the total annual remuneration, etc. for Audit & Supervisory Board Members was set at ¥250 million by resolution of the 45th Ordinary General Meeting of Shareholders of June 27, 2014.

Accounting Audits

	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Compensation of Accounting Auditors	FANUC CORPORATION	Millions of Yen	36	36	36	38	43	—

Compliance

	Boundary	Unit	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Code (GRI standards)
Number of reports filed through whistle-blowing system/ company hot-line system※	FANUC CORPORATION	Violations	—	1	4	7	5	102-34
Number of Fines and Penalties for Corruption		Violations	0	0	0	0	0	205-3
Total Cost of Fines and Penalties for Corruption		Yen	0	0	0	0	0	205-3

※Operation start in March 1, 2016.

Shareholder Rights

Anti-Takeover Measures	None	102-18
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SUSTAINABILITY REPORT 2019

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