Environmental Policies and Frameworks

“Protect the environment and work to conserve limited resources” is part of our management philosophy. Bearing the importance of conserving the global environment in mind, we will conduct our operations so as to reduce environmental impact in all our business areas, thereby helping to achieve a society that can develop sustainably and a healthy global environment.

Environmental policies

TOKYO KEIKI has contributed to society by using electronics technology to commercialize the functions of human senses, such as measurement, cognition, and control.

We have always given full consideration to the environment in the course of our business activities, but we have now reaffirmed the importance of environmental conservation on a global scale. As such, in order to pass on a rich natural environment and limited resources to the next generation, we will go one step further and work with the participation of all employees to conserve and improve the environment to the extent technically and economically possible.

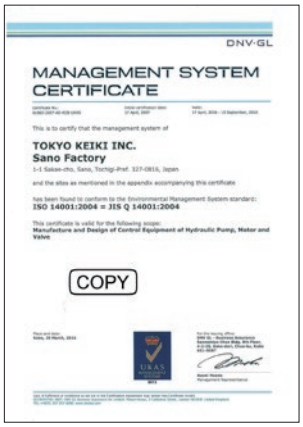
1. We will evaluate the environmental impact of all our business activities and the products we provide to our customers at during production, use, and disposal, and strive to save resources and energy, reduce waste, and prevent pollution.
2. We will establish and maintain a PDCA cycle by setting environmental objectives and targets for these initiatives.
3. In addition to complying with environmental laws and regulations, ordinances, industry codes of conduct, and agreements with local communities, we will establish and maintain independent management standards wherever possible.
4. We will establish an environmental management system in which all employees participate, using audits and reviews to make improvements on an ongoing basis.
5. We will provide education to all employees to improve their awareness of the environment and the environmental management system, as well as asking our affiliates and partner companies for their understanding and cooperation.
6. These environmental policies shall be publicly disclosed.

Environmental policies at our plants

Our Nasu, Yaita, and Sano plants have drawn up their own environmental policies based on the company-wide policies, taking into account the characteristics of the manufacturing they perform and consideration for the surrounding environment. In order to put our basic philosophy into practice, each internal company has formulated its own environmental policies and is working actively to acquire various certifications, including ISO 14001.

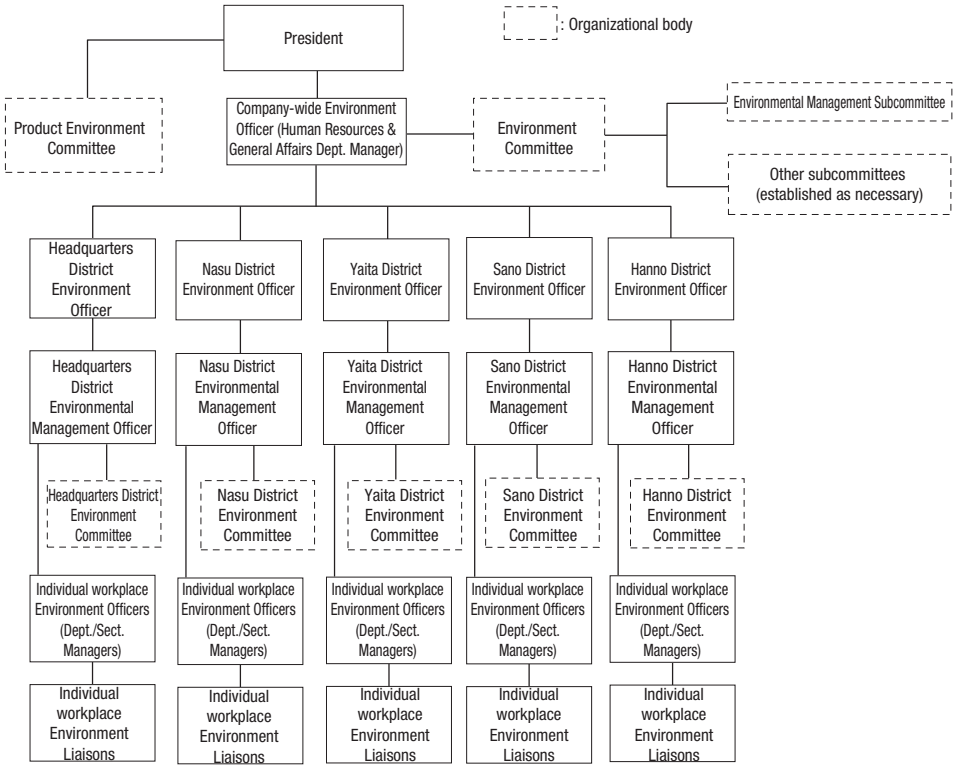
ISO 14001 compliance status

Location	Date acquired
Nasu Plant	December 2005
Yaita Plant	January 2007
Sano Plant	April 2007
Tanuma Plant	November 2006



Organizational structure

The Environment Committee is in charge of company-wide environmental policy, and the Environmental Management Subcommittee has been established beneath it. The head of the Human Resources & General Affairs Department chairs both committees, and the managers of the Nasu, Yaita, and Sano plants serve as committee members.



Environmental targets and performance

The Environmental Management Subcommittee, headed by the head of TOKYO KEIKI's Human Resources & General Affairs Department, sets targets for environmental activities, draws up environmental plans, and puts them into practice. In addition to company-wide targets, targets have also been set for each plant, with efforts ongoing at each.

New TOKYO KEIKI Group environmental targets

As part of the environmental management system, our Group has long worked to reduce its overall energy usage. In FY 2021, we aimed to engage in management that is even more environmentally and socially conscious than ever before. The newly established Sustainability Office took the lead in re-evaluating our Group's medium- to long-term greenhouse gas (GHG) reduction target, which was then deliberated on and approved by the Sustainability Committee. In line with the thinking behind the Japanese government's GHG reduction target (in the industry sector) for FY 2030, our new target for FY 2030 for Scope 1 and 2 GHG emissions is a 37% reduction in comparison with FY 2013.

Business-specific targets

For each plant, reduction targets are set for failure costs, electricity consumption, waste, material consumption, etc., and KPIs are set to serve as indicators for meeting these targets. By implementing a PDCA cycle to promote initiatives aimed at achieving these KPIs, we are working to reduce our environmental impact.

Climate Change Initiatives

Adapting and taking measures to prevent climate change, which poses a threat to human security that transcends national borders, are shared global challenges. As a company that operates globally, we are committed to reducing the environmental impact of our business activities, thereby contributing to the resolution of climate change and the development of a sustainable world.

Our approach to climate change

We at TOKYO KEIKI are strongly aware that the impact and risk posed by climate change to our businesses and all of our stakeholders are important business issues. In order to fulfill our responsibility as a company to mitigate climate change, we are promoting initiatives to reduce GHG emissions from each of our divisions.

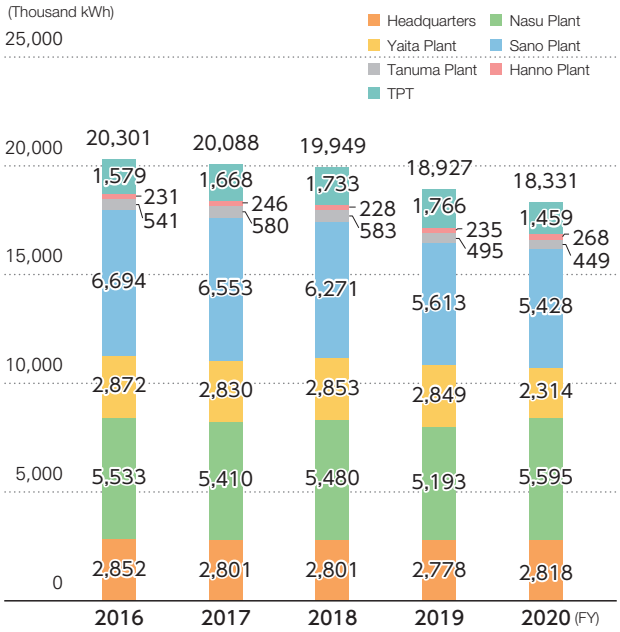
Specific measures to fight climate change

More efficient energy use to reduce GHG emissions

In hardware terms, we are replacing plant equipment with that which emphasizes energy efficiency. Specific measures include switching to LED lighting and energy-efficient air conditioners, replacing power receiving equipment with high-efficiency devices, introducing energy-efficient transformers, upgrading air compressors to inverter systems, using thermal barrier paints on roofs and exterior walls, and using “green curtains” of plants to reduce use of air conditioning.

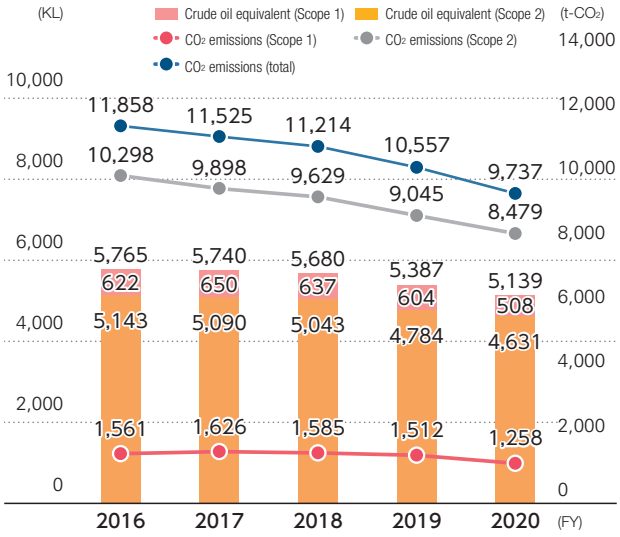
On the operational side, we are pursuing more efficient energy use through measures such as overall optimization using demand-based power monitoring, reduction of power consumption through combined heat-treatment operations, turning off lights when no one is present, making efficiency improvements to cut down operating hours, and implementing mixed loading of delivery trucks to reduce the number in operation.

Electricity use



* Data aggregated for additional sites in comparison with ESG Report 2020

Energy consumption and carbon dioxide emissions (Scope 1, 2)



* Data aggregated for additional sites in comparison with ESG Report 2020

Switch to LED lighting

As part of the ISO 14001 initiative, each of our plants is switching from fluorescent to LED light bulbs to reduce electricity use by an average of 1% per year, in line with the non-binding targets set by the Energy Conservation Act. With the exception of a few areas, this initiative, which started in FY 2014, was completed at the end of FY 2019, and the Sano Plant and Hanno Plant have already achieved a 100% LED conversion rate.

The Nasu and Yaita plants, which have LED conversion rates of 99% and 98% respectively, will continue to work towards full conversion.

Through the replacement of fluorescent bulbs with LEDs, we have achieved total reductions in energy consumption of 1,248,393 kWh/year at our major business sites.

Upgrading to energy-saving equipment

When upgrading or introducing new equipment for use in offices and plants, we work to reduce the amount of energy we use by selecting energy-efficient products.

When introducing new equipment, the staff member in charge selects a model and vendor after assessing the energy efficiency of multiple products, and this selection is then approved by a supervisor. At that time, the Workplace Environment Officer also checks the relevant legal regulations, and the results are reported to the Environmental Management Officer for approval via the Environment Office.

Sequential replacement of water-cooled air conditioners with energy-saving air-cooled models

Reduction of design defects

Design defects can not only lead to serious incidents, but also to significant material and energy losses due to reduced yield rates. As such, reducing design defects is also essential to minimizing environmental impact.

We are continuing our efforts to prevent design defects by conducting design reviews for all new products, existing products, and products with design changes. For software, design management is carried out using operating procedure manuals. By creating a database of past design defect information, design defects can be shared companywide and checked as needed to prevent new design defects from occurring.

Reducing electricity use by promoting process improvement

Even with highly energy efficient equipment and the prevention of defects in the design stage, waste in production processes limits the effectiveness of energy conservation. Our Group is working to reduce electricity use in the production stage as well by eliminating waste in production processes.

The Nasu Plant boasts the largest scale in our Group. As a production site for precision mechatronics devices, in addition to assembling electronic equipment, the plant also engages in the machining of mechanical components utilizing a variety of machine tools, and here we pursue optimum work processes.

Improving hydraulic valve spool and sleeve machining

In the machining of spools and sleeves for hydraulic valves, we took on the challenge of reducing operating hours for machine tools used in sleeve polishing (lapping), something that previously required many hours. Previously, 3μ lapping powder was used for all relevant sleeve lapping. We then switched to using 6μ lapping powder to perform a “rough” lapping before using the conventional 3μ lapping powder to perform a “finishing” lapping. This improvement resulted in a 3,498-minute annual reduction in machine tool operating hours, helping to reduce power consumption by 64 kWh per year.

Reducing machining times for internal high-precision gyrosensor components

Worm gears, screw-like gears used in high-performance gyrosensors, are produced at the Nasu Plant. The existing machining method was an issue. It involved many processes and required a lot of time. Revising the machining method to reduce the number of processes from eight to five and switching to numerical control (NC) made it possible to drastically reduce machine tool operating hours by 84%. This improvement resulted in a 1,802-minute annual reduction in machine tool operating hours, helping to reduce power consumption by 45 kWh per year.

Reducing machine operating hours for drill machine processes

Aluminum sensor blocks used for high-precision inertial measurement units are produced at the Nasu Plant. Each block has 158 screw holes for mounting components, requiring numerous taps to be drilled. As this required much time, efforts were made to improve the work process. The process was changed and a switch was made from using a radial drill machine to perform the work, to using two machining centers (MCs). This improvement resulted in a 2,922-minute annual reduction in machine tool operating hours, helping to reduce power consumption by 330 kWh per year.

Realization of a Recycling-Oriented Society

In the manufacturing industry, it is our social responsibility to try to minimize our impact on the environment when we choose materials and use energy to make our products. We are committed to delivering sustainable growth by carrying out our business activities.

Our approach to the creation of a recycling-oriented society

In recognition of the fact that all human activities, including those of TOKYO KEIKI, are dependent on co-existence with the natural environment, we are pursuing initiatives for the development of a sustainable, recycling-oriented society.

Specific measures for reducing waste

Compliance with laws and regulations

Waste is disposed of appropriately in accordance with laws and government ordinances, as well as the regulations of the municipalities where our factories and plants are located.

Promoting the “3 Rs”

• Reuse

We are now reusing some of our used products and parts (including electronic parts) instead of disposing of them.

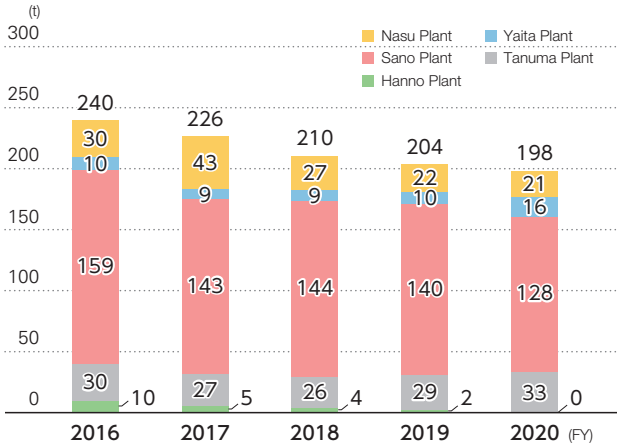
• Reduce

Some of our customers and our partner factories have introduced reusable containers that can be used to move goods between each other’s factories, thereby eliminating waste of consumable materials such as cardboard and packaging materials. In addition, the evaporation and drying of waste water from glass processing and the use of equipment to reclaim cleaning solutions are helping to reduce the amount of industrial waste water we produce.

• Recycle

We are continuously taking measures to prevent the waste of resources, such as promoting the recycling of paper, ensuring proper separation of water and oil before collection, and sorting shavings by metal type for recycling.

Amount of waste produced



As a result of promoting the “3 Rs” at each plant, the company’s overall waste output is on a downward trend. Although reducing waste while increasing production volume and making capital investments is a big challenge, TOKYO KEIKI, as a company with a responsibility to the environment, will continue looking for various ways to cut our waste output.

Recycling metal shavings

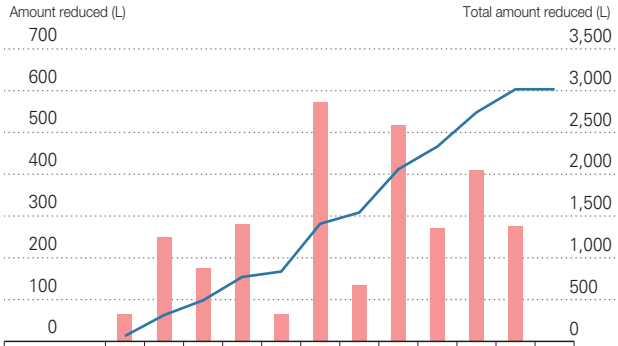
At our Nasu Plant, we are working to recycle the metal shavings produced during the machining process. Scrap metal (aluminum, iron, etc.) produced during lathing, milling, and other stages of the parts machining process is taken to an industrial waste disposal company, which recycles the scrap aluminum into aluminum products and the scrap iron into iron products. In FY 2020, we managed to recycle 4,717 kg of scrap metal (1,218 kg of aluminum, 3,150 kg of iron, and 349 kg of other metals).

Metal shavings to be separated and stored for recycling

Recycling used wash oil

The Sano Plant alone accounts for approximately two-thirds of the company's overall waste output, and roughly half of that is water-soluble cutting fluid, wash oil, and other types of waste oil. In the past, contractors were hired to collect all of this. Having established a goal of reducing waste, however, we installed equipment to recycle hydrocarbon wash oil. As a result, we were able to separate the oil content from wash oil and recycle approximately 90% of our wash oil. We confirmed that the amount disposed was one-tenth of what it was previously. In FY 2020, we achieved 3,017 L, and we plan on reducing waste output even further by expanding this initiative to other departments going forward.

Amount of waste oil reduced through use of wash oil recycling equipment (FY 2020)



	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Amount reduced (L)	65	250	176	280	65	572	134	518	272	409	276	0
Total amount reduced (L)	65	315	491	771	836	1,408	1,542	2,060	2,332	2,741	3,017	3,017

Introduction of reusable containers

The reusable containers, which are used as part of our efforts to reduce the amount of cardboard, packing materials, and other consumable materials produced as waste, have been introduced to carry items between our factories and those of nearby assembly contractors and customers. At the Nasu Plant, for example, their use currently accounts for 8% of total order value, resulting in an annual waste reduction of about 1,000 kg of cardboard.

Reusable containers used at our plants

Reducing paper consumption

- **Going paperless with a general purpose workflow system**

In the 1980s, ahead of our competitors, our Group utilized a total office automation (TOA) system powered by a core system implemented on a general purpose mainframe computer. Via this TOA system, we were able to digitalize schedule management, time cards, and various applications such as business trip expenses, increasing work efficiency.

The functions of this TOA system were retained when we switched to an open system and built our current core system, but during the switchover, we still had many paper-based applications. In addition to the issue that processing these paper-based applications required many sheets of paper to be used, there were a variety of other problems, such as the need to physically come to the company to make an application, and the inability to know the progress of a matter while an application was being processed. This also meant that, particularly for plants and regional offices, there were many inefficient work processes, such as mailing applications to Headquarters and post-approval filing taking large amounts of time. Building an application system into our core system in order to resolve these challenges would have required a great deal of time and money. In addition, with each matter involving its own individual planning and design, resulting in operations and input that were neither uniform nor unified, it was feared that this would actually decrease efficiency.

Accordingly, in 2019 we introduced a general purpose workflow system in order to enable the digitization of numerous applications. The introduction of this system made it possible to design and implement workflows in one's own department without having to request its development by an information system division. After it was introduced as a package, a total of 50 applications from a variety of departments were implemented as part of the workflow system. In FY 2020, 2,244 applications were digitized, with the majority being those of Headquarters staff departments. As a result, we significantly reduced the amount of paper used annually, including duplicates and multiple attached documents.

Going forward, we aim to increase the types of applicable applications, reducing paper usage and, at the same time, further increasing work efficiency.

General purpose workflow system entry screen

Specific measures for proper management of chemicals

Policies

Some chemical substances have harmful effects on the environment and human body. As such, it is companies' social responsibility to manage them properly and to take the environment and occupational safety into account. We are working to cut our emissions of chemicals by setting voluntary reduction targets.

Switching to alternatives to hazardous chemicals

Each of our factories is actively switching to alternative materials to hazardous chemicals.

- **Cleaning agents for hydraulic products**
  Switched from dichloromethane to hydrocarbon-based
- **Thinners**
  Switched to alternatives free from toluene and xylene
- **Cutting fluid**
  Switched to alternatives free from chlorine

Green partner initiative

The "Green Partner System" is an initiative to eliminate hazardous substances from production processes throughout the supply chain in order to encourage environmentally friendly manufacturing. TOKYO KEIKI is putting this system into practice alongside our suppliers, subcontractors, and other partners.

Under this initiative, partners who meet our management standards and have the ability to conduct independent quality management to prevent hazardous substances being used in or contaminating their production lines are certified as Green Partners. This eliminates the need to submit a non-inclusion certificate for each product or part and to conduct some of the tests on the chemical substances they contain. We also provide various benefits to Green Partners, such as support for the testing and analysis of chemical substances contained in parts and materials, provision of environment-related information, and support for environment-related education.

Reducing hazardous waste

We are working to reduce the amount of hazardous substances that we dispose of by reviewing purchase lots, reducing excess inventory by subdividing orders, and encouraging the purchase of products that do not use hazardous substances.

In the past, we used dichloromethane to remove oil from the surface of hydraulic products produced at the Sano Plant prior to the coating process. Dichloromethane, however, is a highly toxic chemical substance. After selecting, studying, and testing substitute cleaning agents, we believed we could switch to a less toxic hydrocarbon-based cleaning agent. We built our own dedicated cleaning equipment and began using it in January 2021. Excluding certain large-sized products, we are now able to use this equipment to clean our main products and have decreased our use of dichloromethane by 85% compared to before making the change.

PRTR emissions: Sano Plant

* Emissions only (excluding transfers)

FY	Dichloromethane (kg)	Toluene (kg)
2016	11,900	1,300
2017	15,400	1,140
2018	18,400	1,330
2019	14,000	1,100
2020	11,000	990

PRTR emissions: Nasu Plant

* Emissions only (excluding transfers)

FY	Xylene (kg)	1,2,4-Trimethylbenzene (kg)
2016	68	10
2017	43	11
2018	66	17
2019	51	12
2020	50	12

Specific measures on biodiversity

Protecting the red pine forest along the Nasu Kaido Road

Through the Nasunogahara Branch of the Nippon Bonsai Association, we are participating in efforts in support of the Enna Forest Management Office to protect red pine trees in national forests. (For details, please visit our social contributions page.)

Greening and cleaning of areas around plants

The Hanno Plant replaced aging cherry trees with evergreen shrubbery (azaleas) in order to conserve green space on the grounds. The Hanno Plant also participated in community activities, such as cleaning up leaf litter around the plant.

At the Yaita Plant, as part of efforts to create an environment that is more suitable for birds and insects, the cedar trees planted on the green space in the north parking lot have been replaced with cherry trees. In FY 2017 and 2018, 52 cherry trees were planted at intervals of about 5 meters. As a result, insects that could not be seen when the cedars were planted have been confirmed to be living in the area.

A row of cherry trees planted in place of cedars (Yaita Plant)

Headquarters grounds certified as an Ota Ward Protected Forest

Technoport Kamata, the location of TOKYO KEIKI's Headquarters, is an office building block that was built as a redevelopment of the site of our former headquarters and plant. Construction was completed in September 1990. Two-thirds of the vast grounds were turned into a tranquil green space environment. For the convenience of the local community, walkways around the area were provided, reflecting the original aim of the redevelopment project to contribute to the enhancement of the area.

Thirty years after the completion of construction, the trees planted at that time have grown, turning the grounds into a conspicuous green oasis in Kamata, a district with little verdure.

The area around our Headquarters, in particular, is surrounded by a variety of trees, and Ota Ward has designated the more than 2,000-m² green space around the Headquarters building as a "Protected Forest."

Message from a representative of the Ota Ward Office

"In order to conserve precious greenery in the ward, Ota Ward designates trees and green spaces that meet certain criteria as Protected Trees, etc. The greenery of your company that Ota Ward has designated as a Protected Forest serves as scenic symbol of the area. Ota Ward hopes that your company will continue to protect this greenery, which provides peace and tranquility to the community."
(Kou Machida, Ota Ward, Environmental Measures Division, Environmental Sanitation Department)