

The background of the entire page is a light blue gradient. Overlaid on this is a large, semi-transparent globe of the Earth, showing the continents in a darker shade of blue. The globe is centered horizontally and vertically.

ENVIRONMENTAL REPORT 2020

DIGEST VERSION

For the year ended December 31, 2020

Foreword

Environmental protection activities

The Star Micronics Group celebrated its 70th anniversary in July 2020.

The environment surrounding the Star Micronics Group has undergone significant changes over the years, and the pace of change has accelerated in recent years due to advances in digital technology and the strengthening of global economic ties.

In particular, global warming and other environmental problems are spreading rapidly throughout the world. In order to prevent carbon emissions, which are considered to be the cause of global warming, the Group regards decarbonization and other efforts to move away from fossil fuels to be an important management issue for it to fulfill its social responsibility.

By creating new value that addresses these social issues, the Group is working hard to establish environmentally friendly manufacturing in the belief that we can contribute to efforts to protect the global environment.

To achieve our goals, the Group focuses on health and strives to create a safe, hygienic, and comfortable work environment so that employees can fully utilize their abilities.

The Group will continually strive to realize a sustainable society. We look forward to your continued support.



April 2021
Mamoru Sato
Representative Director,
President and CEO



| | |
|----|---|
| 01 | Foreword |
| 02 | Environmental management |
| 05 | Environmental load associated with business activities |
| 07 | Environmental accounting |
| 08 | Energy saving actions to prevent global warming |
| 11 | Environmentally friendly manufacturing |
| 12 | Lowering environmental contamination risk |
| 14 | Promotion of reduction and recycling activity of waste |
| 14 | Social contribution activities related to the environment |

Range covered: Domestic Company offices(total of 2 locations),Subsidiaries(total of 2 companies).
Overseas Subsidiary (1 key production site).

Period: The year "2020" represents period from January 1,2020 to December 31,2020.



Environmental management

Correspondence to ISO14001

While promoting the acquisition of ISO14001 certification, we moved some of our sites to self-declaration. We will continue to promote environment-friendly business activities based on our environmental policy, including our affiliates sites that have shifted to a self-conformance declaration.

Domestic

Company factories / Offices

| | | |
|-------------------------------------|---|---|
| General Administration Headquarters | Head Office | Acquired September 2001 (Self-conformance declaration: September 2010) |
| Special Products Division | Head Office / Quality Technical Center | Acquired March 2001 (Self-conformance declaration: September 2018) |
| Machine Tools Division | Kikugawa Factory | Acquired March 2002 |

Subsidiaries

| | | | |
|-----------------------|--------------------------|------------------|---------------------|
| Star Metal Company | Manufacturing Department | Kikugawa Factory | Acquired April 2006 |
| | Sheet Metal Department | | Acquired March 2007 |
| Micro Sapporo Company | | | Acquired March 2007 |

Overseas

Subsidiary (Key production site)

| | |
|---|-------------------|
| Star Micronics Manufacturing Dalian Co., Ltd. (Dalian, China) | Acquired May 2002 |
|---|-------------------|



Environmental audits

Internal environmental audits

Internal environmental audits are conducted regularly each year at domestic factories to confirm that environmental management systems are adequate and effective, and that environmental management programs are appropriate and legally compliant.

We also conduct skills enhancement seminars for internal environmental auditors to improve the expertise of people conducting internal audits.

A comprehensive environmental audit report is created listing items that fall below the expected standards, and the report is submitted to management as data for use in compiling the end-of-year environmental review. Thus audits contribute to improvements in the following year.

External environmental audits

Domestic factories that have acquired ISO14001 certification are subject to environmental audits (environmental management system inspection) by an external inspection authority. Certification maintenance inspections take place once a year, while renewal inspections are conducted every three years.

The results of these inspections are submitted to management as data for use in compiling the end-of-year environmental review, thereby contributing to improvements in the following year.

Emergency response

Every year, We plan and conduct emergency-related training of relevant parties and disaster prevention drills, as well as simulation-based drills for individuals and entire facilities based on manuals, which are evaluated as part of the process. These drills anticipate every conceivable accident or emergency (earthquake, typhoon, explosion, fire, blackout, chemicals leak, and airborne hazard, etc.).



Oil leak training





Environmental training

We believe that to maintain, and further improve, the level of our environmental activities, we need to change the mindset of every single employee. We therefore offer training opportunities for all employees from new hires to management. Training comprises four core categories: general, rank-based, leader-oriented, and specialist.

In 2020 (domestic), we conducted event an introductory environmental seminar.

Environmental training structure

| Training category | Personnel eligible | Internal / External seminars offered |
|--------------------------|--|--|
| General training | Regular employees | Introductory seminar, general seminar, waste products separation seminar |
| Rank-based training | Managers | Managers' seminar |
| | Top management | Top management seminar |
| Leader-oriented training | Environmental leaders | Environmental manual seminar (Including document management) |
| Specialist training | Environmental survey team | Environmental impact evaluation seminar |
| | Internal environmental auditors | Internal auditor development seminar (Internal/External)* |
| | Personnel in charge of environmental law | Environmental law seminar* |
| | Public-sector environmental experts | Qualification seminar/Test based on laws and regulations |
| | Personnel in charge of procurement | Green procurement seminar |
| | Personnel in charge of waste products | Waste products seminar |
| | Harmful substance handler | OJT by personnel with public-sector environmental qualifications |
| | Noise measurement personnel | OJT by certified internal environmental experts |

*For the certified internal environmental experts

Public, environmental qualified person related to environment

| Name of qualification | Number of persons qualified (Number of persons qualified in 2020) |
|--|--|
| Safety manager | 5 (0) |
| Public health manager | 16 (0) |
| Pollution prevention manager | 5 (0) |
| Manager in charge of industrial waste requiring special management | 14 (0) |
| Fire prevention manager | 7 (0) |
| Promoter of energy management and planning | 1 (0) |
| Dangerous substance handler | 85 (0) |
| Manager in charge of handling of toxic and harmful substances | 3 (0) |
| Manager in charge of X-ray operations | 1 (0) |
| Manager in charge of organic solvent operations | 27 (0) |
| Manager in charge of specific chemical substance operations | 6 (0) |

Status of legal compliance

Star Micronics have stipulated internal regulations for the application of environment-related laws, and compliance with these laws is evaluated in accordance with a list of specific items to be monitored and measured.

Legal compliance is confirmed by checking that results measured are in line with management figures, and the data is stored as an environmental record. When installing, introducing, changing, or disposing of facilities and equipment, we conduct an assessment of the facilities and equipment to evaluate legal compliance.



Environmental load associated with business activities

We use a variety of resources and energy during the process of conducting business activities. This results in the emission of CO₂ and the generation of waste products. We assess the environmental load associated with our activities and promotes activities to decrease environmental load by reducing the amount of energy consumed, waste products generated and decreasing the amount of hazardous materials used.

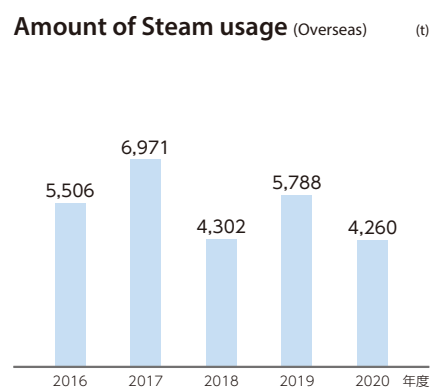
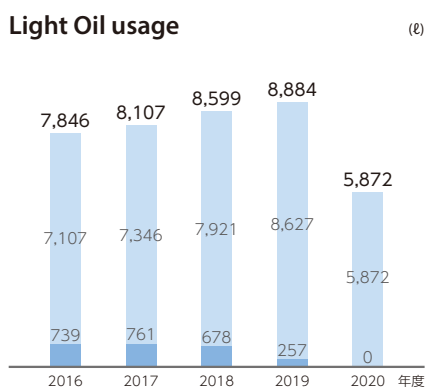
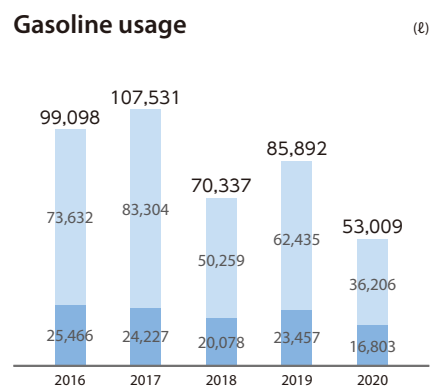
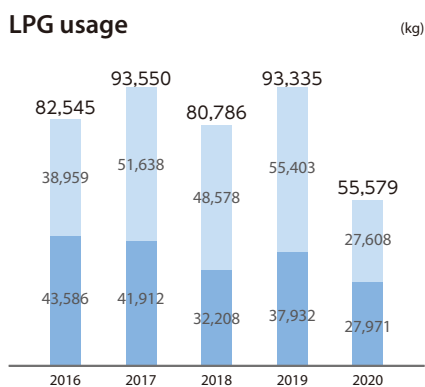
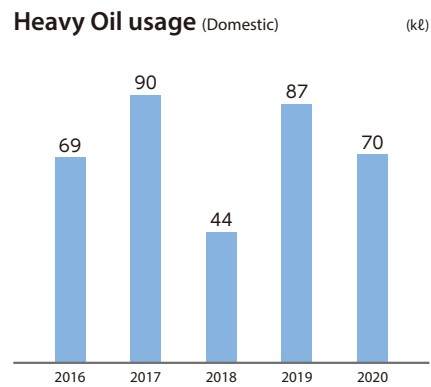
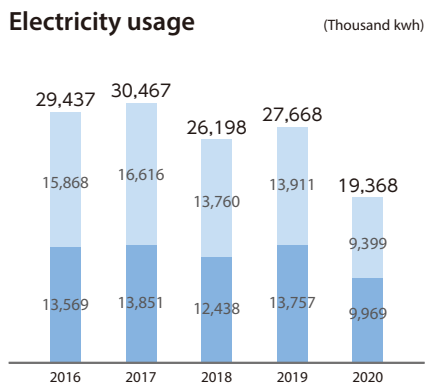
*Scope of analysis: Domestic (Star Micronics Co., Ltd.),

Overseas (Star Micronics Manufacturing Dalian Co., Ltd.; Star Micronics Manufacturing (Thailand) Co., Ltd.)

Note: 12/2018 is a 10-month summary from March to December.

Change in input amount (Major items)

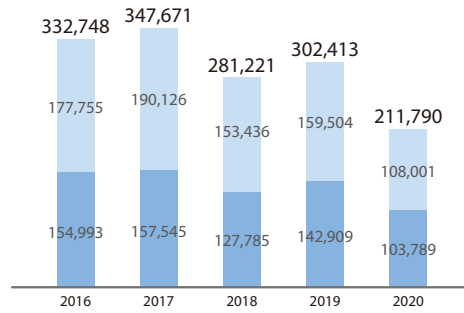
Domestic Overseas





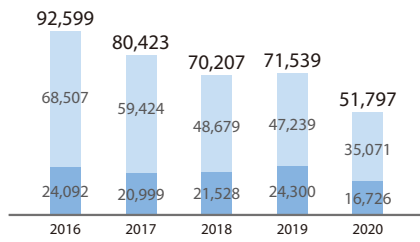
Domestic Overseas

Total amount of energy used (GJ)

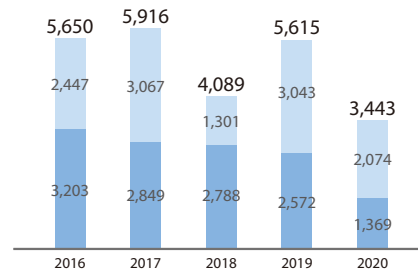


Note: Domestic conversion factors are used when calculating overseas energy.

Water usage (m³)



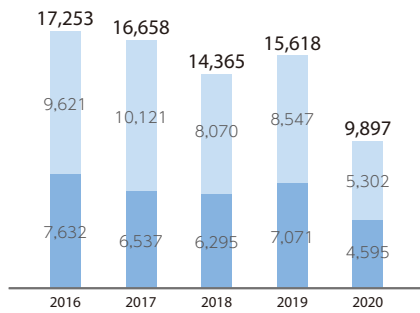
Copy paper purchased (Thousand sheets)



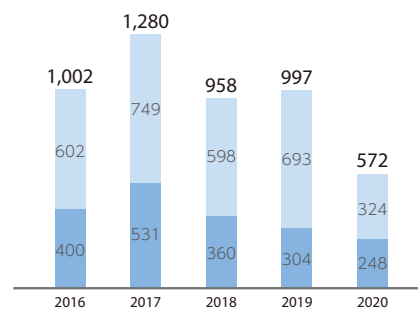
Change in discharge amount (Major items)

Domestic Overseas

CO₂ emissions (t)



Waste generated (t)





Environmental accounting

Environmental protection costs

(Thousands of yen)

| Category | | Initiatives | Domestic | | Overseas | |
|------------------------------------|---------------------------------|--|------------|----------|------------|----------|
| | | | Investment | Expenses | Investment | Expenses |
| Costs within business area | Pollution prevention cost | Prevention of air/water/ground contamination | 0 | 4,014 | 22,198 | 2,936 |
| | Environmental preservation cost | Energy conservation | 0 | 1,731 | 0 | 12 |
| | Resource recycling cost | Treatment/disposal of waste | 0 | 8,565 | 0 | 2,480 |
| Upstream/downstream cost | | Green procurement difference | 0 | 196 | 0 | 0 |
| Management activity cost | | EMS operation, education, on-site planting | 0 | 15,706 | 0 | 2,523 |
| Research & development cost | | R&D, WEEE/RoHS measures | 0 | 380 | 0 | 0 |
| Social contribution cost | | Donations, financial support | 0 | 104 | 0 | 0 |
| Environmental damage response cost | | Repairs for ground/water contamination | 0 | 0 | 0 | 0 |
| Total | | | 0 | 30,696 | 22,198 | 7,951 |

Note: Excludes depreciation expense.

Financial impact resulting from environmental protection measures

(Thousands of yen)

| Category | | Domestic | Overseas |
|--------------------------------------|--|----------|----------|
| Earnings | Gains from sales of marketable waste from business activities | 4,777 | 6,146 |
| Expense reductions (Year on year) | Total energy expense (electricity/heavy oil/LPG/gasoline/light oil) reductions | 134,422 | 66,131 |
| | Reductions in water/well water usage expense | 4,855 | 105 |
| | Reductions in copy paper purchase expense | 1,168 | 269 |
| | Reductions in waste disposal expense | 2,287 | 3,663 |
| | Others | 0 | 0 |
| Total | | 142,732 | 70,168 |

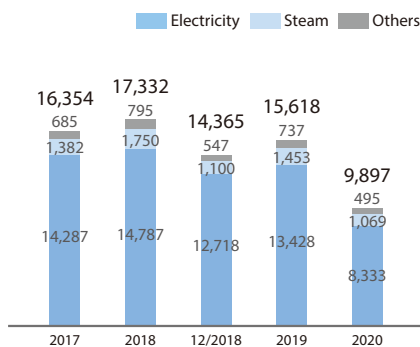


Energy saving actions to prevent global warming

We are taking a variety of actions to reduce the amount of energy consumed and is working to reduce CO₂ emissions amount.

Changes in CO₂ emissions amount

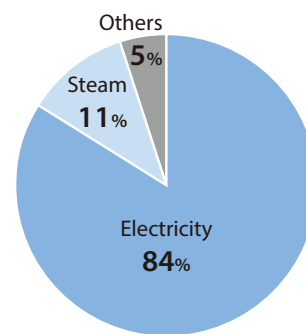
Changes in CO₂ emissions by category (t)



Note: 12/2018 is a 10-month summary from March to December.

Breakdown of CO₂ emissions by category

(2020, domestic and overseas factories)



Less air conditioning

We lengthened our Cool Biz Campaign in accordance with lengthening of the period at the Ministry of the Environment.

Cool Biz Campaign

1. Period conducted: May 13 to the end of October
2. Air conditioning temperature: Set to 28°C
(Although the campaign does not apply to manufacturing and reception areas, these are included as much as possible.)
3. Attire: No neckties or uniforms are worn

Warm Biz Campaign

1. Period conducted: December 1 to the end of March
2. Heating temperature: Set to 22°C
3. Attire: Employees are encouraged to wear warm clothes

Information is posted at the entrances to each office and visitors are urged to cooperate.



Warm Biz information board

Cool Biz information board



Installation of solar power facilities

As part of environmental conservation actions, we installed solar power facilities on roofs of Kikugawa Factory and the factory at Star Metal Company. The two facilities provide a total output of 350 kilowatts. It has power generated 420 thousand kilowatt-hours in 2020. An amount equivalent to the power consumed by about 140 average households. All of the generated electricity is sold to Chubu Electric Power Co., Inc.



Solar power facility of Kikugawa Factory (Red flame)



Solar power facility of Star Metal Company (Red flame)

Efficient and power-saving light

At the Kikugawa Factory, the use of LEDs for mercury lamps has reduced power consumption by a factor of ten.



LED lighting (Kikugawa Factory)



The number of company cars owned

In order to reduce the amount of CO₂ emissions by company cars, we have implemented the use of lightweight cars and hybrid cars.

| | | (Number) | | | |
|------|-------------|---------------|-----------|-------------|-------|
| Year | Type of car | Ordinary cars | Mini cars | Hybrid cars | Total |
| 2016 | | 29 | 10 | 9 | 48 |
| 2017 | | 25 | 8 | 9 | 42 |
| 2018 | | 19 | 5 | 8 | 32 |
| 2019 | | 22 | 3 | 12 | 37 |
| 2020 | | 22 | 3 | 11 | 37 |

* The above number as of the end of December

Response to the revised energy conservation act

As a business which is subject to the revised energy conservation act, we must reduce our energy consumption rate every year in the mid- to long-term. In response to this law, we have appointed an Energy Management Supervisor and an Energy Management Planner who fulfill a central role in energy conservation activities. We have also established an Energy Conservation Task Force and formulated compliance rules for promoting energy conservation to serve as guidelines. Through such measures, we are actively working to conserve energy.

Environmentally friendly manufacturing

Special Products Division

We offer a lineup of environmentally-friendly printers that achieve low power consumption. Furthermore, we are implementing initiatives such as the AllReceipts, an electronic receipt service which digitizes receipt data on the cloud to enable storage and reuse. For packaging, we use paper molded products (pulp mold) made from recycled waste paper such as newspapers and cardboard. We also reduce the amount of receipt paper used by equipping printers with a backfeed function that removes margins.

We are also working to support thermal paper which complies with rules for BPA*-free paper in Europe.

*BPA: Bisphenol A



Machine Tools Division

Release of SX-38, the Swiss-Type Automatic Lathe

The Star Micronics Group has released the SX-38 as a new model of Swiss-type automatic lathe. The SX-38 has a gang-type tool post with a B-axis and a turret positioned facing each other, and is capable of processing workpieces with complicated shapes with a maximum machining diameter of 38 mm. The turret uses a one-position driving method which drives only the power tool for the surface being processed. This method significantly increases the lifespan of workpieces. In addition, SX-38 can switch between guide bush mode and non-guide bush mode, thus enabling processing with optimal specifications that supports machining of long workpieces and lessening the length of stock waste. In terms of control, SX-38 uses Star Motion Control, which enables efficient axis movement and significantly reduce non-cutting time.



Pursuit of environmental performance

The company has established the following environmental standards, and models that meet the criteria are certified as environmentally friendly machine tools, and the ECO mark is listed as a "Star environmental standard compliant model".



Star environment standard compliant model

Star environmental conformity standard

- Powder coated exterior cover
- 99% or more of RoHS parts correspondence rate

Design support by computer analysis

We actively introduce CAE (design support by computer analysis) methods such as linear / nonlinear analysis into product development.

This has made it possible to save energy and resources by reducing the number of prototypes at the development stage, and also to conserve resources by realizing functions with fewer materials at the product stage.



Structural improvement example by CAE

Lowering environmental contamination risk

Managing chemical substances

Star Micronics have created and implemented internal regulations for the management of harmful substances and dangerous materials handled by the company in order to ensure proper and safe management of chemical substances. These internal regulations, based on the relevant laws and statutory regulations, are designed to ensure that the environment is taken into account in the purchasing, storage, use and disposal of such substances.

Response to PRTR* Law

In accordance with the PRTR (Pollutant Release and Transfer Register) Law, we have continued to submit notification regarding the emission and transfer volume for Class 1 Designated Chemical Substances. The annual handling volume of such substances has decreased greatly due to the use of powder paints which do not contain organic solvents (including substance subject to PRTR) and to a change to alternative materials. As a result, since 2011 there are no longer any offices for which submission is required.

However, from the perspective of appropriate handling of chemical substances, we will continue to gather data on emission and transfer volume.

The emission/transfer amount of substances in 2020 was as follows.

*The PRTR (Pollutant Release and Transfer Register) Law is a means of obtaining, collating and disclosing emission and transfer volume data for harmful chemical substances.

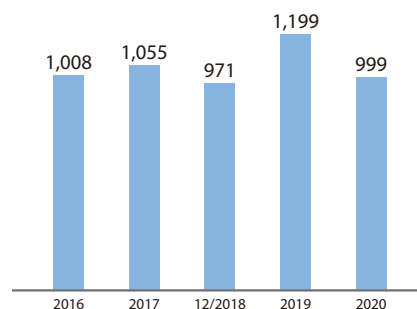
PRTR reports for all domestic factories

(kg/year)

| Factory | Substance No. | Chemical substance name | Use | Emissions volume | | | Transfer volume | | | Total |
|-----------------------|---------------|-------------------------|----------------|------------------|-----------------------|-----------------------|-------------------------|--------------------|----------------------|------------|
| | | | | Air | Public drainage areas | Ground within factory | Landfill within factory | Washed into sewage | Waste within factory | |
| Micro Sapporo Company | 309 | Nickel compound | Chroming | 0 | 0 | 0 | 0 | 4 | 2 | 6 |
| Star Metal Company | 300 | Toluene | Coating | 329 | 0 | 0 | 0 | 0 | 85 | 414 |
| | 80 | Xylene | Coating | 8 | 0 | 0 | 0 | 0 | 5 | 13 |
| Kikugawa Factory | 53 | Ethylbenzene | Coating | 0 | 0 | 0 | 0 | 0 | 38 | 38 |
| | 80 | Xylene | Coating | 0 | 0 | 0 | 0 | 0 | 48 | 48 |
| | 296 | 1,2,4-Trimethylbenzene | Coating | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| | 300 | Toluene | Coating | 0 | 0 | 0 | 0 | 0 | 27 | 27 |
| | 384 | Normal hexane extracts | Parts cleaning | 447 | 0 | 0 | 0 | 0 | 0 | 447 |
| | 419 | Butyl methacrylate | Coating | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Total | | | | 784 | 0 | 0 | 0 | 4 | 211 | 999 |

Total volume of PRTR emission and transfer

(kg)



Note: 12/2018 is a 10-month summary from March to December.



Response to air pollution

In order to maintain and monitor the standard values above, Star Metal is implementing weekly voluntary inspections using a simplified measuring method in the Machine Tools Division. Use of the powder coating method allows us to reduce environmental load at the manufacturing stage.

This new method has realized the environmental effect of cutting atmospheric pollutants (VOC) drastically and reducing industrial waste by one-third.



Powder coating

Response to EU environmental regulations

Environmental regulations in the European Union (EU) have had a significant impact not only within the EU region but also in various countries around the world, and many Japanese manufacturing industries have been forced to respond in some way.

For our products that fall under WEEE and RoHS directives, we are operating based on our internal regulations for management of substances that burden the environment and on green purchasing guidelines.

Also, for REACH Regulations, we are implementing sequential surveys in regards to whether our products include any SVHC, which are added every year.

Use of X-ray fluorescence spectrometers

We use X-ray fluorescence spectrometers to measure levels of chemical substances contained in components of our printers that fall under the WEEE and RoHS directives, as well as to conduct inspections on receipt of the components.

Our machine tools do not fall under these directives, but we have taken aggressive measures such as using X-ray fluorescence spectrometers to measure the composition of components with a view to reducing harmful substances. Components used in the actual machines in our key products are 99% RoHS compliant, excluding certain NC control equipment.



X-ray fluorescence spectrometer

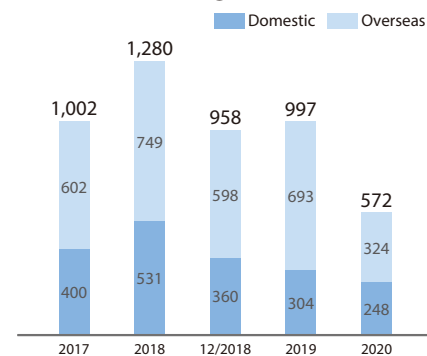


Promotion of reduction and recycling activity of waste

We have created and implemented internal waste management regulations in order to properly dispose of waste produced from corporate activities in line with the requirements of the Waste Disposal Law and to promote voluntary activities.

Waste products generated in 2020 decreased by 425 tons compared to the previous fiscal year. The recycling rate was 99.4%. We will continue to instruct group employees regarding the dismantling and separation of trash in order to improve our recycling rate.

Volume of waste generated (t)



Note: 12/2018 is a 10-month summary from March to December.

Social contribution activities related to the environment

Social contribution activities

We are actively involved in social contribution activities with the cooperation of our employees.

Every year, we participate in voluntary cleanup campaigns organized by the municipal authorities of Shizuoka. However, due to COVID-19, these were cancelled in 2020. We hope that the COVID-19 pandemic will end soon, and will continue to look for other ways to contribute to society.

China: Voluntary activity in Dalian

At Star Micronics Manufacturing Dalian Co., Ltd., one of our overseas production bases located in Dalian, China, we participated in Earth Hour (a worldwide movement organized by the World Wide Fund for Nature to turn off lights for one hour to prevent climate change) on March 28, 2020. The 307 participants were awarded the title of "Earth Guardian."



"Earth Guardian" and the award ceremony

Thailand: Volunteer activities in Nakhon Ratchasima

At Star Micronics Manufacturing (Thailand) Co., Ltd., one of our overseas production bases located in Nakhon Ratchasima, Thailand, we collected donations of toys and sweets from employees for Children's Day (the second Saturday of January every year) and donated them to nearby administrative organizations and schools. We received a letter of appreciation in recognition of our efforts.



Publication of the environmental report

From the perspective of conserving the environment through such measures as reducing energy usage and saving resources, we don't publish its environmental report in paper form. Instead, the report is published on the Star Micronics website as a PDF-format file.

Environmental activities of Star Micronics <https://www.star-m.jp/eng/company/co05.html>

Contact information

General Affairs Section, Star Micronics Co., Ltd.

Tel: +81-54-263-1111 Fax: +81-54-263-1057