

2016

Environmental Management Report

SANYO DENKI CO., LTD.



We at SANYO DENKI Group Companies, aim to help all people achieve happiness, and work with people to make their dreams come true.

To carry out the corporate philosophy, we do the following:

For Environment...	For society and the natural environment, we will help preserve the global environment and contribute to the prosperity of mankind through our corporate activities.
For Customers...	For customers and users, we will create new values through our technology, products and services.
For Suppliers...	For suppliers and vendors, we will strive for integrated technical development and harmonious mutual prosperity through parts purchase, production contracting and joint development.
For Investors...	For investors and financial institutions, we will increase our investment worth and credit through sound and management policy and good access to information.
For Competitors...	For competitors and the industry, we will strive to build industrial and technical development through technical alliances and competition.
For Employees...	For all of our employees, we will help individuals to achieve self-fulfillment through their work and the company.

Contents

P. 2	Message from the Major Operating Officer
P. 3	Environmental Policy and Environmental Management System
P. 4	System
P. 5	Activity Report for Fiscal 2015
P. 6 to 7	Product Development
P. 8 to 9	Energy Saving
P. 10	Reuse & Recycling
P. 11 to 12	Chemical Substance Management
P. 13 to 14	Environmental Accounting
P. 15 to 16	For Local Communities and Employees
P. 17 to 18	Activities at Offices and Works / Environmental Managers
P. 19	Data Summary
P. 20	Goals for Fiscal 2016 and Challenges for the Future
P. 21 to P. 22	Company Profile and Business Profile
P. 23	Global Network

Scope of the report

Organizations covered by the report: The Head Office, the Technology Center and factories in Japan (Kangawa Works, Shioda Works and Fujiyama Works)
Period: Fiscal 2015 (from April 1, 2015 through March 31, 2016, in principle)



Globalization and Global Environmental Protection

In industry, as companies grow increasingly global, they procure materials from a variety of countries, as well as conducting more production and sales activities in other countries. Going forward, the pace of globalization is expected to increase. Supporting globalization, the Internet and other information and communication technologies are progressing at remarkable speed and reshaping our societies and lifestyles in the process. Corporate activities are being transformed as well, as innovation affects not only design and development and the procurement of materials, but production and various other processes as well. Innovative technologies are turning the impossibilities of the past into possibilities.

Against this backdrop, for some time there has been concern about the impact that carbon dioxide and other emissions are having on environmental changes on a global scale. We are actually beginning to experience extreme weather changes. Global warming countermeasures and other activities to protect the global environment are one aspect of corporate social responsibility. Companies can earn society's trust through proactive measures to help protect the global environment. We are being called on to meet our social responsibilities through our corporate activities, thereby helping to realize a sustainable society.

The Relationship between Product Development and Environmental Protection

The Group's corporate philosophy is to "help preserve the global environment and contribute to the prosperity of mankind." For corporate management, economic development is an important goal. The Group is executing management measures that directly link the pursuit of economic development with environmental protection. For example, in product development the Group has set advanced development targets. By reaching these goals, we contribute to environmental protection through the products we develop.

- Advanced product development = lower electricity consumption, compactness, high output, high efficiency, high conversion efficiency, long life, low vibration and other functions
- Advanced products = environmentally friendly products

The development of leading, high-performance products links automatically with environmental protection, forming a close bond between the economy and the environment.

The Group is promoting the development of top-performance products in order to realize a sustainable society.

Harmony between Business Activities and Environmental Activities

The Group's operations span three businesses—servo systems, power systems and cooling systems. We are expanding these operations by developing motor-controlled, power supply, cooling and a variety of other products with different characteristics. In business activities, we set high levels of performance, productivity and quality, as well as shorter delivery times, as targets for product development in our aim to increase the productivity of manufacturing, enhance product quality, decrease production lead times, reduce inventories and shorten delivery periods. All of these activities contribute to saving energy, resources and other aspects of environmental protection. In addition, we take the environment into consideration across all businesses and in all processes, from procuring components and materials to delivering products to customers.

At its development, production and sales bases, the Group directly manages energy conservation and resource savings through energy usage volume, paper usage amounts and zero waste emissions. In addition, the Group undertakes proactive efforts to reduce environmental impact through its business activities and products.

This Environmental Management Report summarizes the environmental management activities the SANYO DENKI Group is undertaking. Through this report, we aim to introduce the Group's environmental management initiatives and the content of its activities. As we strive to fulfill the Group's social responsibilities, we welcome readers' input on the Group's environmental activities.

Senior Executive Operating Officer
Nobumasa Kodama

児玉展全



Environmental Policy

Basic Philosophy

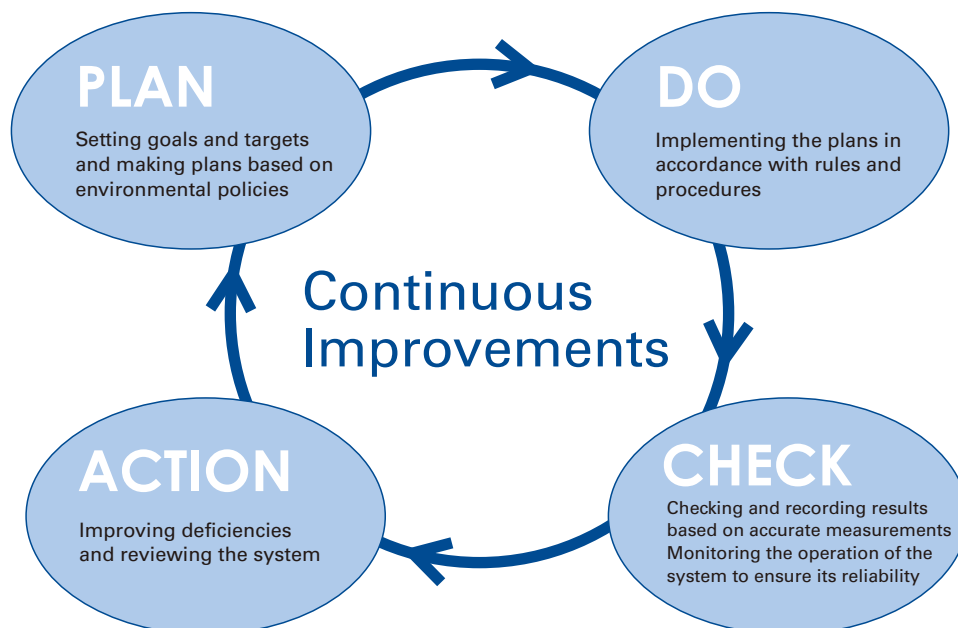
SANYO DENKI helps preserve the global environment and enhance humanity's prosperity through its corporate activities for society and the environment.

Basic Policy

SANYO DENKI CO., LTD., comprising Kangawa Works, Shioda Works, Fujiyama Works, Technology Center and Head Office, develops, designs, manufactures and sells cooling fans, UPS, power conditioners for photovoltaic generation system, engine generators, servo systems, stepping systems, controllers, encoders, and driving devices. Under the principles listed below, each member of SANYO DENKI will take part in eco-friendly activities to help preserve our abundant global environment.

1. We will continuously improve the environmental management system and work hard to prevent pollution and reduce the environmental impact of our activities.
2. We will assess the environmental impact of our corporate activities and focus on our environmental objectives and targets. We will also deal with the following as high-priority themes for environmental management.
 - (1) Develop, design, manufacture, and sell environment-friendly products
 - (2) Reduce or eliminate the use of hazardous chemicals
 - (3) Reduce the environmental impact (energy consumption, number of copies, waste, etc.) of business activities
 - (4) Contribute to the local community
3. We observe environmental laws, restrictions and other rules agreed upon by organizations and work hard for environmental preservation.
4. We document, carry out and maintain our environmental principles, make them known to all our employees, and ask that our employees both cooperate in the pursuit of these principles and reflect them in our environmental management.
5. We will review the environmental management system periodically.
6. We will openly publicize the environmental principles to parties in and outside the company.

Environmental Management System

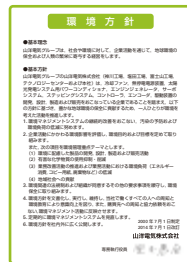


System

It has been 16 years since the Environmental Committee was established in April 2000. The committee has been working to maintain a level of energy saving and waste reduction in factories since fiscal 2004. In addition to reducing environmental burdens, the committee is also striving to reduce the volume of hazardous chemical substances and develop Eco-products to achieve its major environmental management goals.

Major Responsibilities of the Environmental Committee

1. Formulation of policies on environmental conservation activities, and reporting and instructions on the same
2. Formulation and enforcement of company rules and procedures (including company-wide environmental manuals) concerning environmental conservation activities
3. Promotion of environmental conservation activities at the head office, factories and branch offices through those in charge of environmental management
4. External contacts concerning company-wide environmental conservation activities
5. Surveys on social situations relating to environmental conservation activities

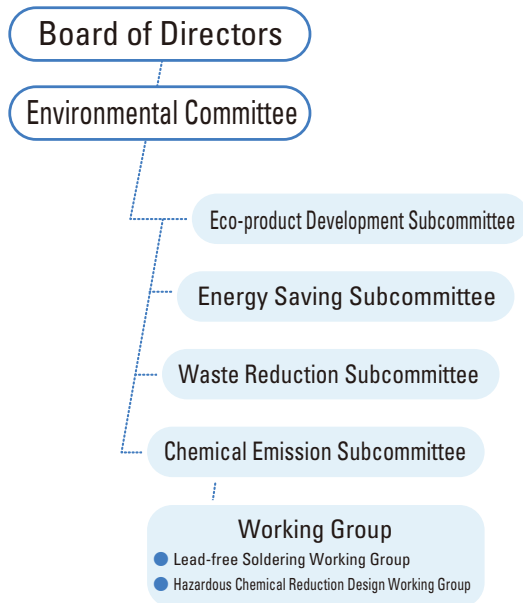


Environmental Policy Brochure

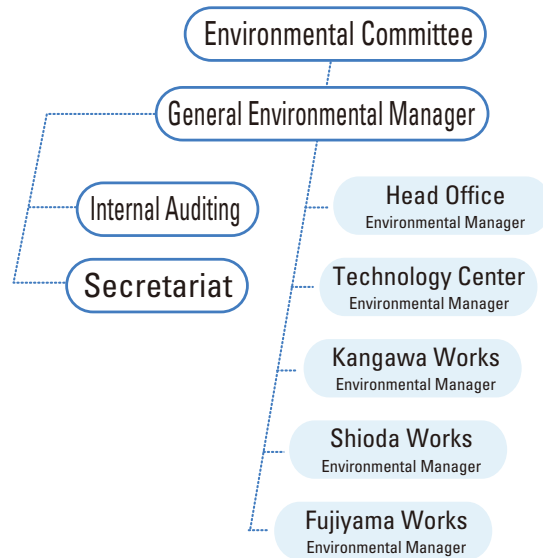


Environmental Committee

Positions within the Environmental Committee and Its Structure



Organization Chart for the Environmental Management System



○ Eco-product Development Subcommittee

It promotes the development of competitive products designed to protect the environment in accordance with eco-design standards.

○ Energy Saving Subcommittee

It promotes energy saving through its daily activities the EMS (environmental management system). It also formulates long-term energy-saving strategies and proposes cost-effective investments.

○ Waste Reduction Subcommittee

It works to reduce waste and disposal costs and achieve zero emissions.

○ Chemical Emission Reduction Subcommittee

It strives to reduce emissions of hazardous chemical substances and minimize environmental pollution via self-management. It also works to promote the use of lead-free soldering and lead-free electric wires, reduce hazardous chemical substances, and develop measures for the PRTR (pollutant release and transfer register).

Activity Report for Fiscal 2015

We developed 15 new certified Eco-products in this fiscal year and were also able to raise the sales ratio for Eco-products to 35%. We achieved a 99.7% level of zero emissions for the company as a whole.

Activity	Goal for fiscal 2015	Track record in fiscal 2015		
Promotion of eco-design	Creation of Eco-products	Fifteen new products certified as Eco-products		
Sales activities	Sales ratio of Eco-products: 45% or higher	Sales ratio of Eco-products: 35%		
Reduction of hazardous chemical substances	Use of lead-free soldering Development of products with reduced amounts of RoHS-6 hazardous substances Reduction of substances defined in the PRTR Law	Lead-free solder usage in each division is now nearly 100%, and we will continue promoting this effort in the future. Almost all models of cooling fans, stepping motors and servo motors now comply with the RoHS-6 hazardous substance directive. Other models are being brought into compliance upon request.		
Reduction in power consumption	Kangawa Works	3%	15%	
	Shioda Works	68%	76%	
	Fujiyama Works	(4%)	13%	
	Technology Center	(8%)	(5%)	
	Head Office	15%	25%	
Reduction in fuel consumption	A-type heavy oil: 292 kl *Total of the Shioda and Fujiyama Works	11%	29%	A-type heavy oil: 234 kl
	LPG: 49,000 m ³ N *Total of the the Technology Center	41%	40%	LPG: 49,600m ³ N
	Town gas: 767,000 m ³ N *Total of the the Kangawa Works	(8%)	5%	Town gas: 676,000m ³ N
	LPG: 40,000 m ³ N *Total of the Fujiyama Works	(48%)	3%	LPG: 26,100m ³ N
Reduction in the use of copy paper	Kangawa Works	(43%)	(31%)	
	Shioda Works	57%	76%	
	Fujiyama Works	(17%)	(4%)	
	Technology Center	3%	23%	
	Head Office	39%	45%	
Reduction of waste	Kangawa Works	(24%)	1%	
	Shioda Works	48%	65%	
	Fujiyama Works	47%	59%	
	Technology Center	39%	34%	
	Head Office	67%	69%	
Contribution to local communities	Head Office, Technology Center, Cleaning of areas around the factories conducted at least once every month	Goal achieved		
Promotion of zero emission	Raising the company-wide waste recycling rate to 99.6% or higher	Company-wide rate: 99.7%		

Note 1: The reduction rate is calculated using fiscal 2000 as the base year, except for electric power and town gas, for which fiscal 2006 and 2010 were used as the respective base years.

Note 2: Figures in parentheses indicate increases.

Eco-products

Efforts for designing Eco-products

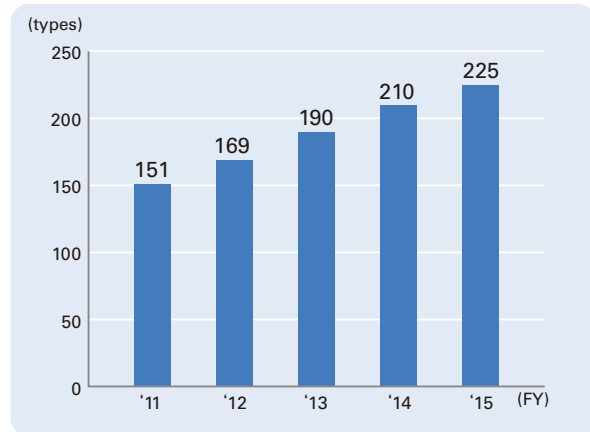
As for product design, we are carrying out R&D to incorporate the latest energy-saving technologies into our new products. At the same time, we carry out product assessments to evaluate the environmental impact of products at each stage, such as component and material procurement, manufacture, distribution, use, recycling, and disposal. Newly developed products are compared with commercially available and existing products and are certified as Eco-products (Eco-design products) if they satisfy the specified evaluation standards. In fiscal 2015, 15 types of products were certified as Eco-products, bringing the total to 225. Eco-products are presented in catalogues and other materials with a LEAF symbol.



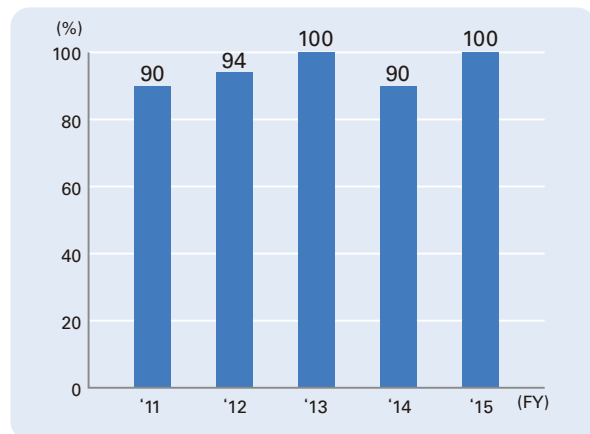
Life cycle assessment (LCA)

LCA is one of the techniques used to provide a general quantitative measure of levels of environmental impact including global warming that products have through their life cycles. We evaluate the environmental compatibility of a product using this method. Our rate of implementing LCA in our Eco-products was 90% in fiscal 2015.

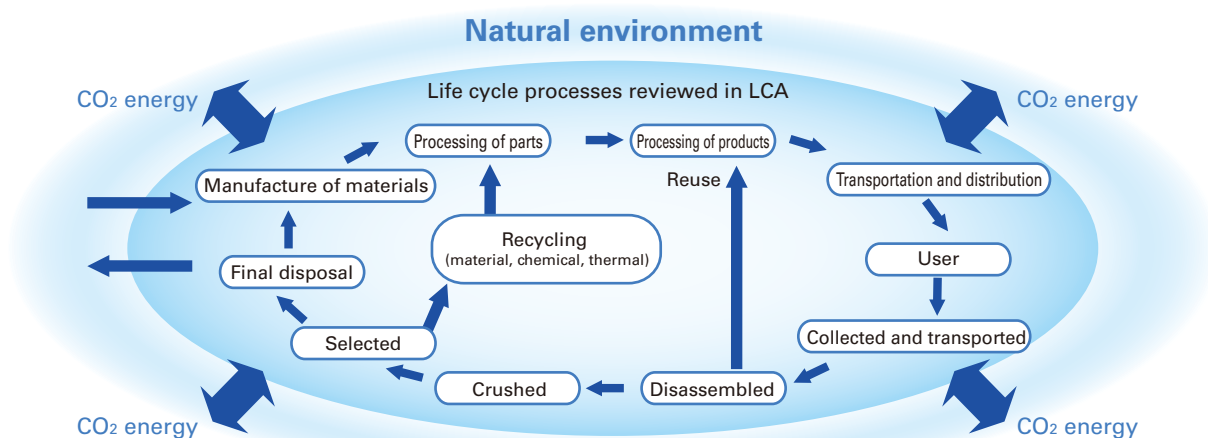
Number of products certified as eco-products
(Total number of products in all divisions)



LCA implementation rate



Life Cycle Processes Reviewed in LCA



Effects on the natural environment (global warming) are assessed at each stage of the life cycle, based on energy consumption and the amount of CO₂ emissions.

Eco-products of Fiscal 2015

Results of LCA

Fifteen new Eco-products were developed in fiscal 2015. We will present the results of the LCA of three representative products. The results are based on a comparison of the amounts of CO₂ emitted during the time of use between newly developed models and their immediate predecessors. Since these products are used for a long time, the reduction of CO₂ emitted during the time of use will be effective in preventing global warming.

92 × 92 × 38 mm AC fan *San Ace 92AD*



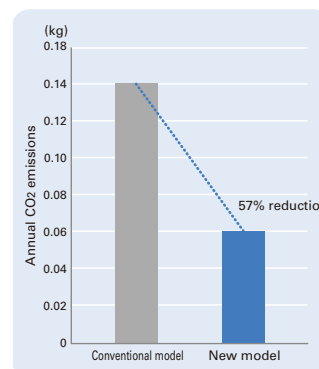
■ Features

- Reduced power consumption by about 57% as compared with conventional models
- Noise level reduced by 5dB(A)
- Expected service life increased by 2.4 times

■ Models used for LCA comparison

New model: 9AD0901M121
Conventional model: 109S091

Comparison of CO₂ emissions



PV inverter with peak cut function *SANUPS P73K*



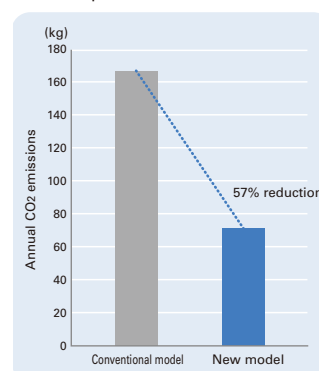
■ Features

- With the peak cut function, contract demand can be reduced.
- Isolated operation function capable of supplying power during an outage.
- The system is composed of stacked 10 kW units, allowing for compact systems of up to 60 kW.
- Meets the FRT requirement
- With the power factor modification function, output power factor can be set from a range of 0.8 to 1.0 in increments of 0.01.
- Adopted the high frequency link insulation method

■ Models used for LCA comparison

New model: P73K103S
Conventional model: P73H103S+TRPMB100T08

Comparison of CO₂ emissions



75 A capacity servo amplifier *SANMOTION R 3E Model*



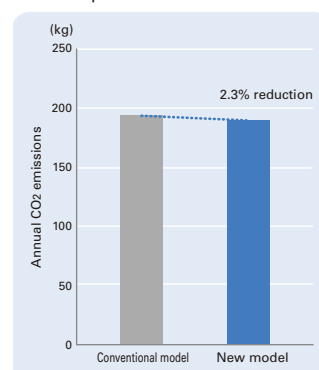
■ Features

- 36% smaller and 40% lighter than our conventional 100 A model (Conventionally, the 100 A amplifier was the only option we offered for combination with compact motors. 75A model was newly added to the lineup.)
- Power loss has been decreased by approximately 8%
- Power consumption monitoring function is equipped, enabling users to check power consumption on screen.
- Improves safety performance of the "Safe Torque Off" function

■ Models used for LCA comparison

New model: RS3A07A*
Conventional model: RS3A10A* or RS2A10A*

Comparison of CO₂ emissions



Specific Energy-Saving Measures

As a countermeasure against global warming, we consider the restriction of CO₂ emissions through energy-saving activities as our top-priority task, and are promoting the improvement of energy use efficiency and energy saving activities. Compared with the preceding fiscal year, in fiscal 2015 lower production volumes led to a decrease in power consumption, and CO₂ emissions decreased. These amounts were up slightly per unit of production.

Results of Introduction

- When introducing electrical heating equipment, we reduced electricity consumption by switching in-house equipment from a conventional furnace heating system to a localized system that reduced standby power consumption.
- We converted factory lighting fixtures to LED, optimized illumination levels and subdivided area lighting to reduce the amount of electricity used in lighting.
- We installed electricity monitoring devices inside circuit breaker boxes at all facilities, making visible the amount of electricity consumed by newly installed equipment and promoting efforts to eliminate waste.



Localized heating system
Electric heating equipment



LED lighting

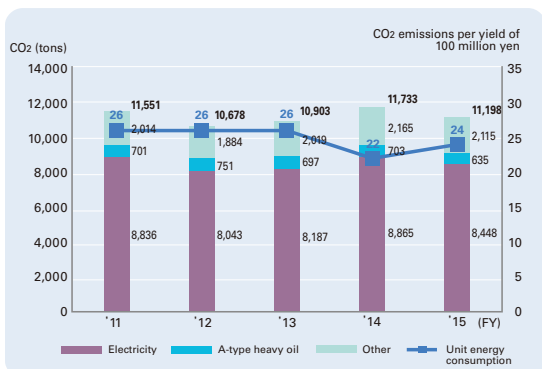


Electricity monitoring
device

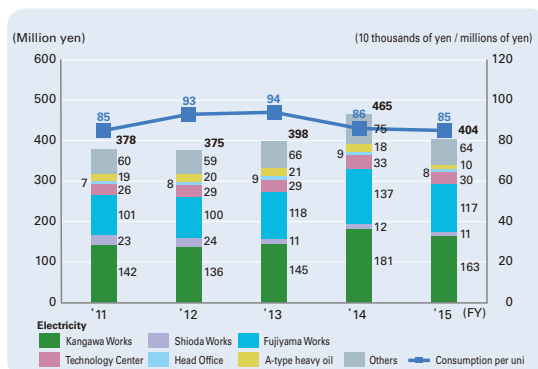


Electricity monitoring system

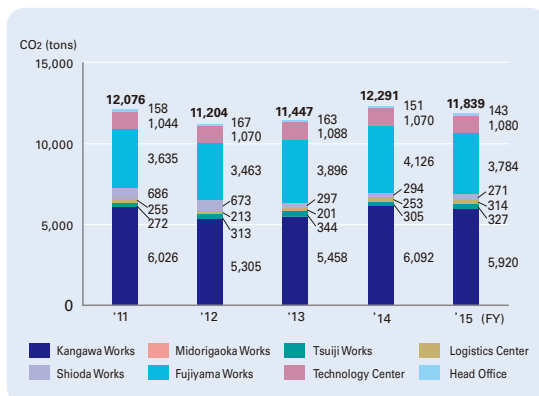
Energy consumption measured in terms of the amount of CO₂



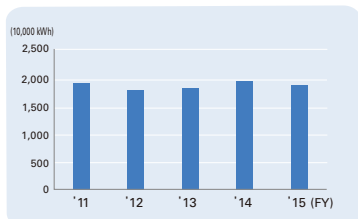
Consumption value per production value



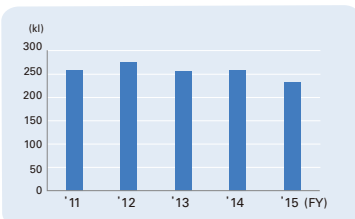
Amounts of CO₂ emissions by factory



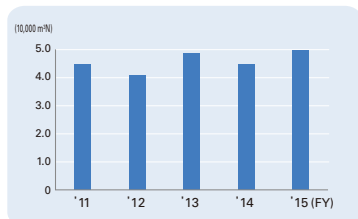
Power consumption



A-type heavy oil



LPG



Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures implemented	Effects
Kangawa Works	(1) Cutting down on unnecessary lighting in warehouses and on equipment (2) Promoting electricity savings when equipment is in standby status (3) Promoting the use of solar power (4) Lower air-pressure setting, repairing air leaks	(1) Saving electricity by limiting the amount of lighting (2) Reduction in commercial electricity by powering equipment down to power saving mode when materials are out or when equipment is not in use (3) Savings in commercial power use (4) Electricity savings by reducing the burden on air compressors
Shioda Works	(1) Affixing calendar timers to machines (2) Promotion of new equipment compatibility and automation at production facilities (3) Systematic operation of boilers according to weekly calendar timers	(1) Savings in electricity by preventing switches from being left on (2) Savings in electricity by reducing production cycle time, putting inspection data on line to eliminate the need for forms (3) Control of the use of A-type heavy oil
Fujiyama Works	(1) Cutting down on unnecessary lighting (2) Adjusting the operating hours of air conditioners (3) Shifting the operating hours of production equipment (4) Adjusting the operating hours of loading equipment for tests (5) Promoting the use of solar power	(1) Savings in electricity by reducing lighting hours (2) Energy savings through reduced operating hours and reduced the use of heavy oil A. (3) Savings in commercial power (4) Savings in electricity by reviewing the test run time (5) Savings in commercial power



Solar panels at Kangawa Works



Solar panels at Logistics Center



Solar panels at Fujiyama Works



PV Inverters at Fujiyama Works

Transportation

Our company is using vehicles that comply with the regulations on diesel car exhaust in seven municipal communities to transport supplies between factories. A company-wide “Stop Idling” campaign is also under way, in order to reduce the environmental burden.



Signboard for stop idling



Low emission vehicles



Electric vehicles



Vehicle that complies with the regulations on diesel car exhaust

Zero-emission Activities

In fiscal 2015, SANYO DENKI set out to achieve a waste recycling ratio of 99.6% as part of its recycling initiatives. This goal was achieved as a result of our efforts to stop producing wastes that are simply buried or incinerated through all-out reduction and recycling of general and industrial wastes that occur in our production activities.

Reuse

We promote in-house recycling of unneeded supplies such as OA equipment, desks, shelves and chairs.

Reuse of Materials

We are returning wooden pallets used to transport purchased materials to carriers in order to promote their reuse. We are also crushing wood chips and using them for weed prevention at in-plant greenbelt areas.

[Other examples of reuse of materials]

Cardboard boxes: returned to suppliers

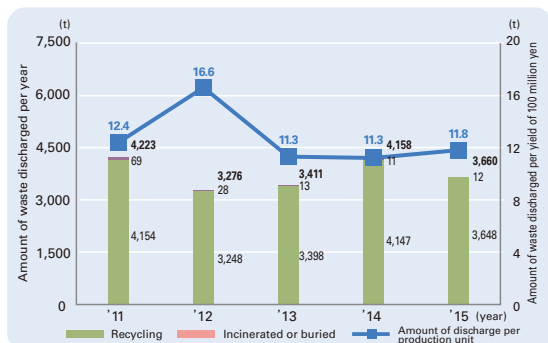
Shock absorbers: reused within the company

Inscription board mounts: recycled

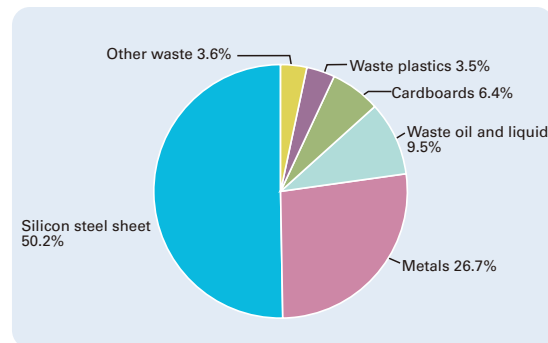


Wood crusher

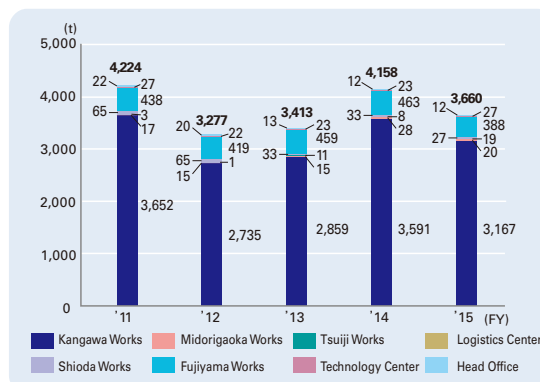
Changes in the amount of wastes discharged



Percentage by type of waste



Amounts of waste by factory



Promoting Green Supplies

Establishment and Use of Chemical Substance Management Guidelines

In August 2005, we established our Chemical Substance Management Guidelines for the management of hazardous substances, concerning parts and materials used for our company's products.

Our Guidelines provide management rules concerning substances specified in various laws and regulations, such as substances whose use is restricted or prohibited by the RoHS Directive, SVHC (high-concern material) in REACH, substances banned by domestic and foreign legislation, and substances designated by the Japan Green Procurement Survey Standardization Initiative (former JGPSSI).

We keep these guidelines up-to-date by making necessary revisions in response to changes in relevant laws and regulations (last updated in November 2015). These include definitions of terms, RoHS threshold values, survey questionnaires for our suppliers on chemical substances that affect the environment, and a guarantee form to assure that no RoHS-restricted substances are included in the materials we use.

Currently, we request that our suppliers agree to abide by our Guidelines, and that they submit a survey questionnaire and a guarantee form to assure that their supplies contain no RoHS-restricted substances.

Green Purchases

Our company actively purchases stationery and office supplies that are environmentally friendly, such as products using recycled materials, substitute materials and waste materials, refillable products, products with replaceable parts, and products designed for recycling.

Reduction of Hazardous Chemical Substances

The Hazardous Chemical Reduction Design Working Group, a subordinate body of the Chemical Emission Subcommittee, is working together with the design sections of business divisions to focus on dealing with regulated substances or those banned by the RoHS directive.

- Expanding the number of models that comply with the RoHS directive (six substances)
Cooling fans and stepping motors are now compliant. Servo motors, servo amplifiers, stepping motor drivers, and power supply systems are on their way toward becoming compliant. Models complying with the RoHS directive are expanding.
 - We are conducting inclusion surveys and finding alternatives for phthalic esters (four substances) that have been added to the RoHS directive. (planning to become compliant by July 2018)
 - An examination of substances will be conducted upon the request of the customer.
 - An examination of hazardous chemical substances contained in our products is under way, based on the Chemical Substance Management Guidelines.
 - Our company guidelines concerning China RoHS and countermeasures for substances banned by the revised RoHS directive and REACH have been disseminated inside our company.
 - RoHS six substances contained in procured materials are being analyzed using an X-ray fluorescence analyzer (XRF).
 - We are conducting inclusion surveys for SVHC materials (substances of high concern: 168 substances) in REACH regulations and providing information to our customers.
 - We are conducting inclusion surveys according to AIS specified by JAMP (Joint Article Management Promotion Consortium), and providing information to our customers.
- RoHS Directive (DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restrictions on the use of certain hazardous substances in electrical and electronic equipment): Six substances (lead, chromium hexavalent, cadmium, mercury, and two specific brominated flame retardants [PBD, PBDE])
 - China RoHS directive: Implemented by the Chinese government, this law bans the use of specified hazardous substances in electrical and electronic products.
 - REACH (Registration, Evaluation, Authorization and Restriction of Chemicals): A comprehensive system for registration, evaluation/approval, and restriction of chemical substances in Europe

Lead-free solder

The Fujiyama Works, which manufactures cooling fans, has been using lead-free solder for high-temperature soldering since March 2006, following the introduction of lead-free solder in all manufacturing processes in January 2004 (except for high temperature soldering exempted from the RoHS standards.) As for production lines mounting substrates for servo amplifiers and power supply systems, lead-free soldering facilities were first installed in fiscal 2004, and full installation has finally been completed.

- Cooling fans, stepping motors, servo motors: Installation of equipment for surface mount soldering has been completed.
- Servo amplifiers, stepping motor drivers: Lead-free solder is being implemented and expanded to RoHS-applicable products. A shift towards lead-free products is being promoted.
- Power supply devices: Lead-free solder is being implemented and expanded to RoHS-applicable products. A shift towards lead-free products is being promoted.

Compliance with the PRTR

Our company registers and reports the amount of discharge and transportation of reportable PRTR-controlled substances when over one ton is consumed at a factory annually.

In fiscal 2015, notification became required on styrene and tetrahydromethylphthalic phthalic anhydride, which is used at the Kangawa Works, as well as phosphoric acid triphenyl, methylnaphthalene, antimony and their compounds, which are used at the Fujiyama Works.

Lead has not been required to be reported for the last nine years because of the reduction of lead usage due to RoHS-compliant soldering.

PRTR (pollutant release and transfer register): A system for collecting, aggregating and publishing data on various hazardous chemical substances to see how much of these substances are released into the environment from what sources, or are transferred with waste from what facilities.

PRTR-controlled substances	PRTR-controlled substances (that are required to be reported and used in amounts of one ton or more)	
Styrene	Kangawa Works	13.0 t
Tetrahydromethylphthalic phthalic anhydride	Kangawa Works	1.1 t
Triphenyl phosphate	Fujiyama Works	2.9 t
Methylnaphthalene	Fujiyama Works	2.7 t
Antimony and its compounds	Fujiyama Works	2.5 t



An X-ray fluorescent analysis device at the Kangawa Works



Lead-free high-temperature soldering equipment at the Fujiyama Works

SANYO DENKI has been employing an environmental accounting system since fiscal 2003 with the aim of implementing efficient and effective measures for environmental conservation. We measure the costs required for environmental conservation in our business activities and the effects produced by these activities using quantitative indicators (measured in terms of monetary units or physical quantities) to the greatest extent possible, and analyze these costs and effects in order to improve the efficiency and activity levels of environment management.

Performance in fiscal 2015

(1) Environmental Conservation Costs

Environmental Conservation Costs in fiscal 2015 were 1,156 million yen in total: 189 million yen for investment and 967 million yen for costs and expenses. Investments went toward global environmental protection costs, to conduct responses in the event of a power outage and electricity leakage countermeasures at the Technology Center. R&D costs went toward efforts to develop Eco-products. As for costs and expenses, R&D costs and management activities costs posted the high rates of 58.5% and 28.4%, respectively.

(2) Environmental Conservation Effects

Due to the impact of lower factory production volumes, we saw positive impacts on all resources used as inputs for business activities, with the exception of LPG usage volumes and light oil consumption. In particular, the introduction of the energy has decreased CO₂ emissions by 420 tons, and electric power consumption by 890 thousands kWh, as compared with the previous fiscal year.

(3) Economic Effects

The cost savings attributed to the energy savings due to the decreased production at the factory fell about 8.5% from the previous year to 62 million yen. Meanwhile, profits from sales of useful materials were 53 million yen, up about 40% from the previous year.

"Environmental Accounting Guidelines" published by the Ministry of the Environment, Format for publication C

Data range (company-wide)

Period covered: April 1, 2015 to March 31, 2016

Environmental Conservation Costs

(In thousands of yen)

Category		Details of major activities	Investment	Cost
(1) Costs within the area of business	1. Pollution prevention costs	Air pollution prevention (measurement of smoke and soot) Water pollution prevention (inspection of wastewater treatment tanks, extraction of sludge, sewage disposal, etc.)	0	20,290
	2. Global environment conservation costs	Periodic electricity checks	7,918	24,172
	3. Resource recycling costs	Reduction of waste, recycling, and proper waste disposal	4,150	58,264
	Total of items 1 through 3		12,068	102,726
(2) Upstream and downstream costs		Green procurement of office supplies and commissions for refurbishing and reconditioning products	0	17,842
(3) Administration costs		Development and operation of EMS and environmental training for employees	0	274,718
(4) R&D costs		Development of Eco-products (such as testing equipment and molds)	176,775	565,641
(5) Social activity costs		Annual membership fee for the Japan Environmental Management Association for Industry, and other fees	0	6,513
(6) Environmental damage measure costs		Assessment of soil contamination, and costs for countermeasures	0	0
Total			188,843	967,440

Expenses include depreciation of facilities and personnel costs.

Effects of Environmental Conservation

Classification	Indicators for the effects of environmental conservation		
	Indicators for environmental burdens	Indicators	Indicator value ^(Note)
Effects on resources input for business activities	Input of energy	Decrease in energy consumption	Energy consumption measured in terms of the amount of CO ₂ : 420 t-CO ₂
			Electricity consumption: 887,000 kWh
			A-type heavy oil consumption: 13.3 kL
			LPG consumption: △ 7.9 t
			Kerosene consumption: 0.75 kL
			Light oil consumption: △ 2.2 kL
			Town gas consumption: 17,500 Nm ³
Input of water	Decrease in water consumption	Photovoltaic power generation: 0.083% (company-wide)	
		Water consumption: △ 4,560 m ³	
Input of other resources	Decrease in the input of other resources	Copy paper consumption: 544,000 heets	
Effects on environmental burdens due to emissions and waste produced by business activities	Discharge of waste and other materials	Decrease in the total discharge of waste and other materials	Total discharge of waste: 498 t
		Increase in the percentage of recyclable materials in the total discharge of waste	Recyclable materials and useful materials: △ 0.07%
		Decrease in the discharge of hazardous waste	Discharge of hazardous waste: 1.78 t

△ : Indicates that there was no difference compared to last year.

Note: The measure of the amount will be stated as the difference from the amount of the reference period compared with the year.

Economic Effects of Environmental Conserving Measures (Substantive Effects)

(In thousands of yen)

Classification		Amount
Profits	Sales of useful materials	52,853
Reduction of costs	Reduction of costs by energy saving	61,760
	Reduction of waste disposal costs by recycling	2,648
	Reduction of expenses for copy paper	1,290

△ : Triangles indicate that there was no difference compared to last year.

Social Contribution

Exchange and cooperation with local communities

Members of the Head Office, the Technology Center, and the factories in Japan clean the areas around their office buildings and factories at least once a month. At the Kangawa Works, large-scale cleaning was carried out in cooperation with the neighborhood community association.

Wrestling with diversification of living things

The preservation related to the diversification of living things is said to be an important issue, as well as countermeasure against global warming. SANYO DENKI performs energy-saving activities and makes efforts by using our resources, including our technologies and products.

Education and Training

Training curriculum

SANYO DENKI's training system is composed of training programs by employee level, career training programs, and training programs by division. In fiscal 2015, we held the following workshops and meetings:

- August 2015
Workshop on designs to reduce hazardous chemical substances (Recent trends of chemical substances and the RoHS Directive and REACH)
- March 2016
Presentation of Eco-products



Outdoor cleaning activities (Head Office)



Company lecture



Outdoor cleaning activities (Ueda Area)



Product presentation meeting

Internal Audits

We have employees conduct internal audits to check that the environmental management system created by the company is being properly implemented and effectively managed and maintained in accordance with regulatory requirements. To ensure the fairness and objectivity of internal audits, we created a certification system for internal auditors to avoid the auditing of divisions by their own members and conduct internal audits in accordance with the standards for internal audits. The results of internal audits are reported to the top management and divisions audited, with the aim of making improvements to the environmental management system.

Safety and Health

To prevent occupational accidents and to ensure the safety and mental and physical health of employees, we formed the Safety and Health Committees and opened its branches at the Head Office and the Ueda branch office (for the Technology Center and the factories). The Safety and Health Committee aims to provide a safe and healthy working environment, and to that end, it allocates officially certified administrators and experts in environmental management to ensure occupational safety and provide health care.

Activities of the Safety and Health Committee

- Inspection visits to workplaces

When a monthly committee meeting is held, committee members make an inspection visit to workplaces. The committee checks whether appropriate measures have been taken to solve the problems pointed out in the previous month, and whether or not any other problems can be detected.

- Prevention of occupational accidents

During inspection visits to workplaces, committee members check certain priority issues to prevent occupational accidents. All branch offices and factories are informed of occupational accidents that occur at workplaces so that they can implement appropriate measures to prevent any recurrence.

- Reports from administrators

The committee receives reports from safety and health administrators concerning environmental measurements, inspection schedules, announcements, training sessions and revisions to laws and regulations.

- Activities for maintaining and improving health

Medical examinations are conducted to achieve a 100% examination rate. Employees with health problems are provided with medical counseling and follow-up examinations. The committee also provides health consultant services to prevent lifestyle diseases in accordance with the annual schedules of branch offices and factories.

- Mental health care

We provide contacts for consultant services, training sessions for managers or those on self-care for general employees, and counseling by nurses.

- Training and drills

Emergency drills are conducted.

- Installation of automatic external defibrillators (AED)

Automatic external defibrillators are installed at the Head Office, Osaka Branch, Nagoya Branch and the Ueda branch office (for the Technology Center and the works). In addition, to be able to act quickly in unexpected situations, training sessions on general emergency life-saving methods are periodically provided.



Training on general emergency life-saving methods



AED



Emergency drills



Emergency supplies for disaster

General Environmental Manager **Hiroyuki Nishimura**

SANYO DENKI established its environmental management system and obtained ISO14001 certification in 1999. Our general environmental manager works in the environmental management system under the direction of the top management to promote environmental activities at our Head Office and factories. In addition to the energy conservation and waste reduction activities at each of our factories, we aim to reduce the global environmental burden by developing high-efficiency energy-saving products for our customers and providing power equipment to reduce consumption using maximum power peak cutting functions and regenerating electric power from braking forces. We also disclose environmental information to a wide spectrum of both internal and external stakeholders and place great importance on communication with local communities and relevant individuals. The Environmental Committee works with environmental managers at our factories to organize specialized subcommittees in order to discuss measures for ongoing environmental improvements and to take an active part in promoting environmental conservation activities to achieve our goals.

The number of employees is as of March 2016.

Head Office **Satoshi Hashiguchi**



- Location: 3-33-1 Minami-Otsuka, Toshima-ku, Tokyo
- Area: 3,378 m²
- Number of employees: 250
- ISO certificate obtained: March 2002



At the Head Office, we set priority targets for increasing the sales percentage of Eco-products, conserving energy, reducing waste, decreasing copying paper and taking part in voluntary community cleanup activities.

- Increasing the sales percentage for Eco-products
- Proper temperature management for air conditioning
- Improvement in the sorting of waste and the recycling rate
- Reducing the use of copying paper by promoting a shift to paperless operations
- Volunteer activities for cleaning areas around the Head Office

We will continue to promote environmental activities at the Head Office and all our sales offices and branches.

Technology Center **Hiroyuki Nishimura**



- Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area: 44,908 m²
- Number of employees: 313
- ISO certificate obtained: November 1999



Our Technology Center is engaged in the design and development of products, and is committed to promoting eco-designs and developing products that are free of hazardous chemicals. To promote the development of products designed for the environment, we certified 15 new items as Eco-products in fiscal 2015. We have nearly completed the installation of equipment required to meet the RoHS standards for our target products, in order to achieve our goal of developing products that are free of hazardous chemicals. At the moment, assessments are underway to check for the presence of SVHCs (substances of very high concern) in compliance with the REACH regulations. We have also worked to reduce the consumption of electricity, LPG and copy paper, as well as the amount of waste, and cleaned areas around the Ueda Research Park for the local community. We will continue to promote energy savings with high efficiency products designed to be environmentally friendly, reuse of electric energy using power regeneration functions, etc., in order to help customers reduce their environmental burden when using our products.

Kangawa Works

Kazuhiko Takizawa



- Location: Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area: 67,140 m²
- Number of employees: 426
- ISO certificate obtained: March 2010
- Major products: AC / DC servo motors, stepping motors, and linear servo motors



The Kangawa Works is working on process improvements for energy savings, such as cutting down on lighting, waste reduction, curtailed use of copy paper, and the promotion of zero emission. In the motor assembly and inspection processes, a production and inspection guidance system has been introduced to prevent operational mistakes and accidental leakage of defective products so that unnecessary processes can be omitted. Also, the use of paper check sheets has been discontinued, leading to a reduction in copy paper use. We have also been engaged in the large-scale cleaning of the surrounding area in cooperation with the neighborhood community association. We will be working on further reduction of environmental burdens through the use of the BEMS central monitoring system that can oversee the energy consumption of the entire site.

Shioda Works

Satoshi Atou



- Location: 517 Goka, Ueda-shi, Nagano
- Area: 5,698 m²
- Number of employees: 14
- ISO certificate obtained: March 2001
- Major products: power conditioners for photovoltaic power generation systems



The Shioda Works is promoting activities to save energy, reduce waste, and eliminate hazardous substances from the manufacturing processes.

- Reduction in power consumption (planned operation of air conditioners by using timers and checking room temperatures, and a reduction in the operation time of production lines by improving the operation rate)
- Reduction in the consumption of A-type heavy oil (planned operation of boilers using timers)
- Reduction in the consumption of copy paper (moving inspection data on line to eliminate the need for forms)
- Thorough sorting of waste materials and promotion of the reuse of the delivery boxes for purchased parts
- Use of components and materials meeting the RoHS directive
- Volunteer activities for cleaning areas around the factory
- Reduction of incinerated waste (ongoing surveillance and detailed analysis of waste)

Fujiyama Works

Shunsuke Niimi



- Location: 4016 Fujiyama, Ueda-shi, Nagano
- Area: 99,828 m²
- Number of employees: 371
- ISO certificate obtained: December 1999
- Major products: Cooling fans, UPS's (uninterruptible power supply devices), power conditioners for photovoltaic power generation systems, emergency self-power generation systems, power source monitoring systems, AC / DC servo amplifiers, stepping drivers and system controllers.



The Fujiyama Works operates its production activities in the F1, F2 and F3 wings which are occupied by the Cooling Systems Division, Power Systems Division and Servo Systems Division, respectively. Each division is working on the reduction of environmental burdens, energy saving and waste reduction and zero emissions through improvements of their operations. In fiscal 2015, our efforts will continue toward the achievement of our environmental goals.

- Reduction in the consumption of electricity and A-type heavy oil
- Reduction in the consumption of lead by using lead-free solder
- Reduction of waste (waste plastics and cardboards) and zero emission activities
- Use of components and materials meeting the RoHS directive
- Volunteer activities for cleaning areas around the factory

Data on Air Quality, Water Quality, and Noise

Kangawa Works	Item	Regulatory standard	Voluntary standard	Actual value	Shioda Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Smoke and soot (g/m ³ N)	Exempted (no data)			Air quality Air pollution control laws and ordinances	Smoke and soot (g/m ³ N)	0.3	0.03	0.004
	Nox (ppm)					Nox (ppm)	180	130	75
	Sox (m ³ N/h)					Sox (m ³ N/h)	1.4	0.7	0.0048
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 to 8.6	—	7.5	Water quality Water pollution control laws, ordinance and agreements	PH (pH)	Exempted (No water disposal tank)		
	BOD (mg/L)	20	19	7.7		BOD (mg/L)			
	SS (mg/L)	30	28	26.0		SS (mg/L)			
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	61	Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	50
Technology Center	Item	Regulatory standard	Voluntary standard	Actual value	Fujiyama Works	Item	Regulatory standard	Voluntary standard	Actual value
Air quality Air pollution control laws and ordinances	Cold and hot water generator Smoke and soot (g/m ³ N)	Exempted			Air quality Air pollution control laws and ordinances	Smoke and soot (g/m ³ N)	0.3	0.03	0.0105
	Power generation equipment Smoke and soot (g/m ³ N)	Exempted				Nox (ppm)	180	130	72
	Cold and hot water generator Nox(ppm)	150	130	78		Sox (m ³ N/h)	5.0	2.5	0.048
	Power generation equipment Nox(ppm)	600	550	20	Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 to 8.6	—	7.5
	Sox (m ³ N/h)	Exempted				BOD (mg/L)	50	48	17.0
				SS (mg/L)		60	54	27.0	
Water quality Water pollution control laws, ordinance and agreements	PH (pH)	5.8 to 8.6	—	7.6	Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted
	BOD (mg/L)	20	19	6.2					
	SS (mg/L)	60	54	16.0					
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted					

Waste Recycling Data

Waste		Amount discharged (tons)	Amount recycled (tons) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	6.7	6.7/100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	15.2	14.1/92.4	After intermediate treatment, some of the sludge is recycled as road construction materials. Some is also gasified by furnaces, with residues recycled as cement materials.
Waste liquid	Oil-based materials	2.9	2.8/96.6	After oil and water are separated, the material is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	239.6	239.6/100	Reuse and incinerated residues are used as cement materials.
	Volatile materials	5.2	5.2/100	Distilled and used as recycled oil.
	Waste acid (batteries)	69.9	69.9/100	Crushed, sorted, and all recycled.
Waste plastics	OA equipment and circuit boards	18.5	18.5/100	Crushed, sorted, and all recycled.
	Vinyls and films	57.7	57.7/100	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces), and materials for power generation (thermal recycling)
	Molding scraps	36.7	36.7/100	
	Other solid scraps	7.1	6.0/85.3	
	Styrofoam recycling	7.2	7.2/100	Turned into raw materials (material recycling); immersed in solvent to be turned into soil, and recycled as raw material
Metal scraps	Scraps generated in manufacturing processes	2816.1	2816.1/100	Recycled as metal materials
	Metals (including empty cans)	0.2	0.2/100	
Paper scraps	Used paper	7.0	7.0/100	Turned into raw materials for recycled paper
	Newspapers, magazines, and other papers	58.9	58.9/100	
	Cardboards	235.1	235.1/100	
Wood scraps	Packages and transportation pallets	31.7	31.7/100	
Glass and ceramic scraps	Empty bottles, glass, and ceramics	3.0	3.0/100	Crushed and turned into road construction materials
Other waste	Paper scraps and other waste	10.1	1.7/16.7	Incinerated
Total		3660.8	3650.1/99.7	

Goals for Fiscal 2016 and Challenges for the Future

We created 15 eco-design products (Eco-products) in fiscal 2015, a year during which 35% of our sales were accounted for by Eco-products. We will continue to promote the LCA-based development of products designed to reduce CO₂ emitted during their use and to be eco-friendly.

Item	Goals for Fiscal 2016	Goals to be achieved by fiscal 2018
Promotion of Eco-products	Creation of Eco-products	Creation of Eco-products
Sales activities	Sales ratio of Eco-products (by business division) Coolong Systems Division sales ratio: 42% or higher Power Systems Division sales ratio: 42% or higher Servo Systems Division sales ratio: 34% or higher	Sales ratio of Eco-products (by business division) Coolong Systems Division sales ratio: 46% or higher Power Systems Division sales ratio: 47% or higher Servo Systems Division sales ratio: 37% or higher
Reduction of hazardous chemical substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS & REACH standards Reduction of PRTR-controlled substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS & REACH standards Reduction of PRTR-controlled substances
Reduction in power consumption	Reduction by 10% compared to fiscal 2006	Reduction by 12% compared to fiscal 2006
Reduction in fuel consumption	Consumption of LPG (Technology Center) Maintaining it at the current level (reduced by 52% compared to fiscal 2000)	Consumption of LPG (Technology Center) Maintaining it at the current level (reduced by 52% compared to fiscal 2000)
	Consumption of LPG (Fujiyama Works) Maintain at the fiscal 2013 level	Consumption of LPG (Fujiyama Works) Maintain at the fiscal 2013 level
	Consumption of A-type heavy oil Maintaining it at the current level (reduced by 21% compared to fiscal 2000)	Consumption of A-type heavy oil Maintaining it at the current level (reduced by 21% compared to fiscal 2000)
	Consumption of town gas Reduction by 10% compared to fiscal 2010	Consumption of town gas Reduction by 10% compared to fiscal 2010
Reduction in copier paper consumption	Maintaining it at the current level (reduced by 15% compared to fiscal 2000)	Maintaining it at the current level (reduced by 15% compared to fiscal 2000)
Reduction of waste	Maintaining it at the current level (reduced by 0% compared to fiscal 2000)	Maintaining it at the current level (reduced by 0% compared to fiscal 2000)
Contribution to local communities	Cleaning of the area around factories at least once every month Participation in environment-related events	Cleaning of the area around factories at least once every month Participation in environment-related events
Promotion of zeroemission	Maintaining a company-wide waste recycling rate at 99.6% or higher	Maintaining a company-wide waste recycling rate at 99.6% or higher

Company Profile

Founded	August 1927
Incorporated	December 1936
Capital	9.9 billion yen (As of March 31, 2016)
Annual Sales	80 billion yen (As of March period, 2016)
CEO/President & COO	Shigeo Yamamoto
Number of Employees SANYO DENKI Group	3,029 (As of March 31, 2016)
Corporate Headquarters	3-33-1 Minami-Otsuka, Toshima-ku, Tokyo, 170-8451, Japan TEL: +81 3 5927 1020 FAX: +81 3 5952 1600
Stock Listing	The First Section of the Tokyo Stock Exchange
Homepage	http://www.sanyodenki.com

Business Profile

SANYO DENKI is working to develop new technologies and products, with the aim of creating “technologies to protect the global environment,” “technologies to ensure human health and safety” and “technologies to exploit new energy sources and save energy.”

■ Cooling Systems Division

Development, manufacture and sales of cooling fans and cooling systems

■ Power Systems Division

Development, manufacture and sales of uninterruptible power supplies, power conditioners for photovoltaic power generation systems, and engine generators

■ Servo Systems Division

Development, manufacture, and sales of servo systems, stepping systems, controllers and encoders

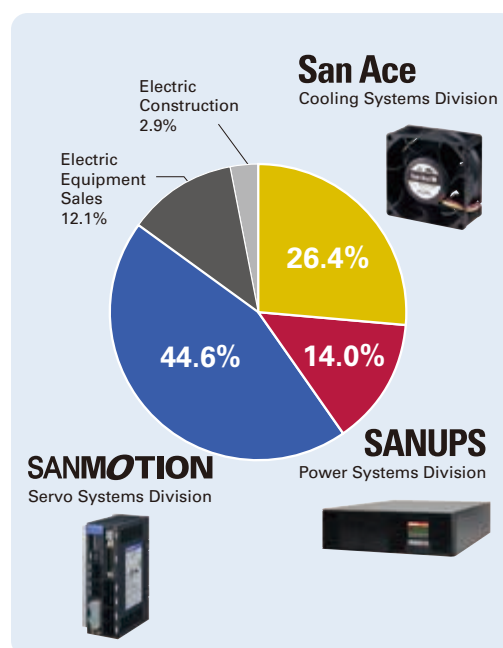
■ Electrical Equipment

Sales of domestic and foreign manufacturers’ electrical and electronic products

■ Electrical Work Contracting

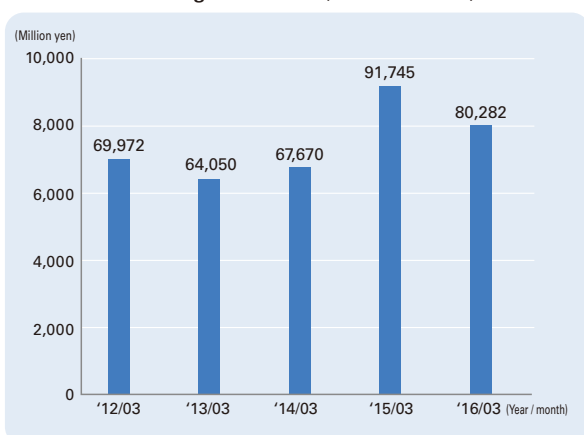
Planning, design, construction and maintenance of industrial control systems

Sales Ratio
(for the period from April 2015 through March 2016)

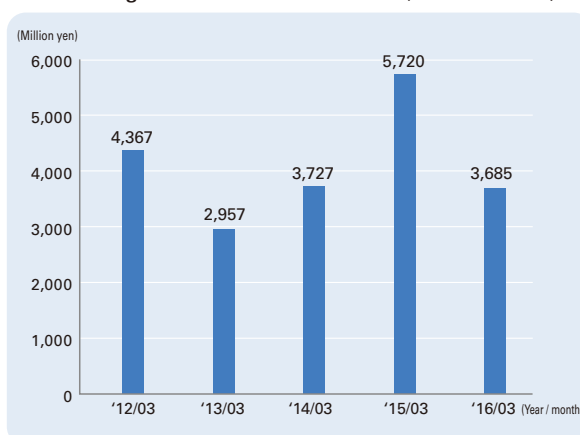


Operating Performance

Changes in sales (consolidated)



Changes in current net income (consolidated)



Application Examples



DC Cooling Fan



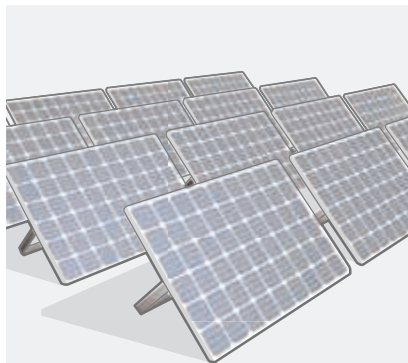
Blower



High Static Pressure Fan

Server

In recent years, growth in data capacity has caused data center servers to increase density and emit greater amounts of heat. As such, high airflow, high static pressure fans are used to increase cooling performance.



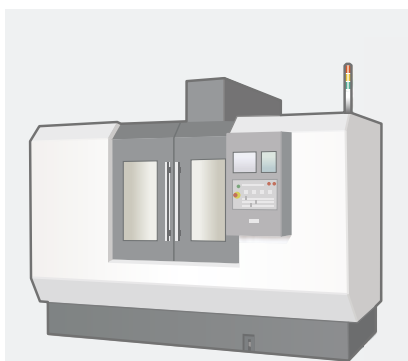
PV Inverter



PV Inverter

Photovoltaic Power Systems

Photovoltaic power must be converted from the DC power generated by photovoltaic panels to the AC power used by equipment. PV inverters are used to convert that power.



Stepping motor



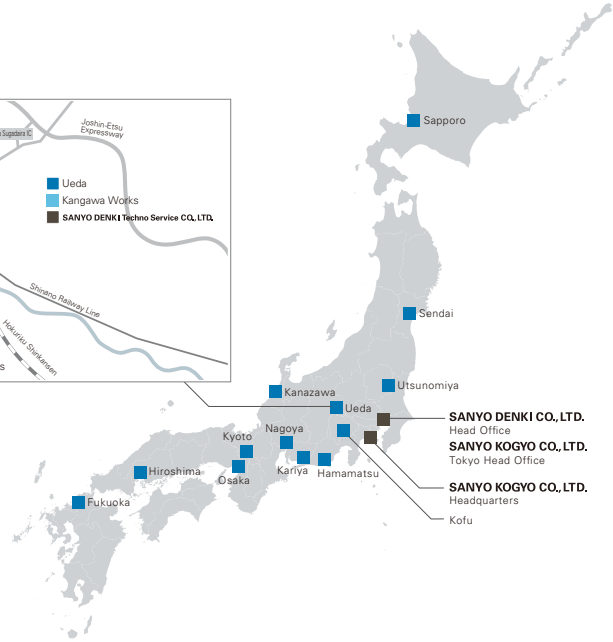
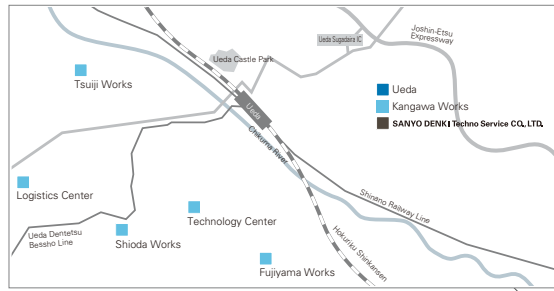
Servo motor

Machine Tools

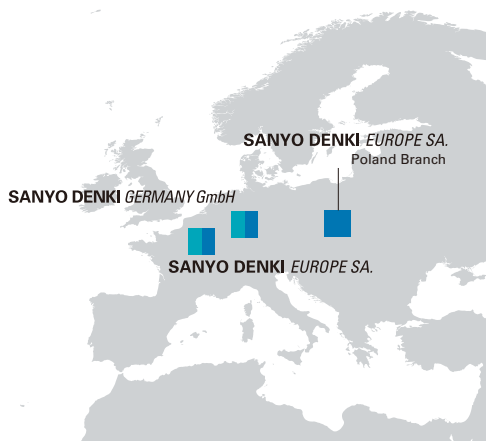
Machine tools must be able to process a wide-variety of parts, therefore they require accurate and highly precise driving. As such, servo motors with high accuracy positioning, and highly precise stepping motors with simple controls are used.

Japan

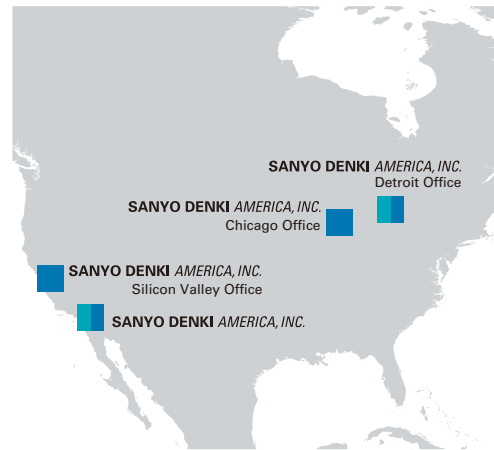
- Sales
- Production Sites
- TC Technical Center



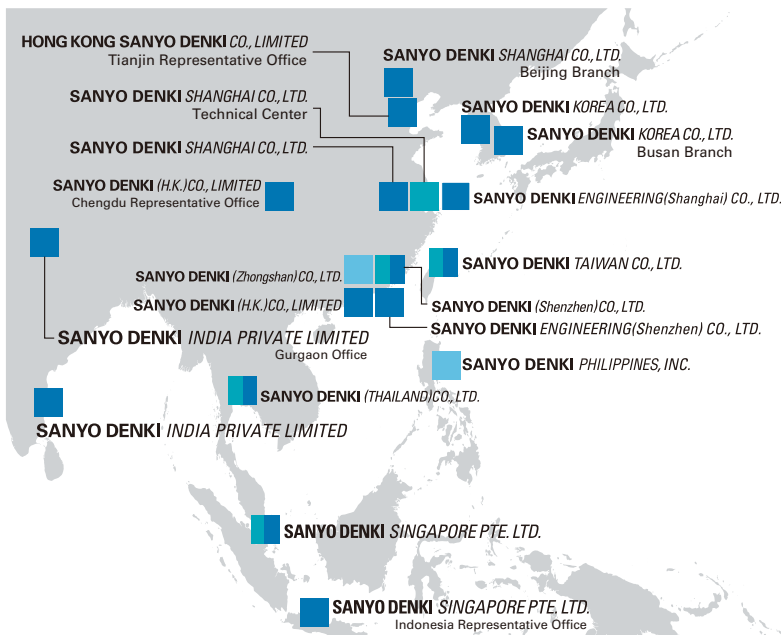
Europe



America



Asia



For inquiries about the Environmental Management Report, please contact:

SANYO DENKI CO., LTD.
 Public Relations Dept.
 3-33-1 Minami-Otsuka, Toshima-ku,
 Tokyo 170-8451
 TEL: 03-5927-1040
 FAX: 03-5952-1603
 e-mail: pr@sanyodenki.com