

# Environmental Management Report

# 2013



## We SANYO DENKI make the dreams of people come true for the happiness of people in cooperation with people.

To carry out the corporate philosophy, we do the following

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

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### 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 covered by the report: Fiscal 2012(from April 1, 2012 through March 31, 2013; more recent information is included in the Environmental Topics section)

Thank you for your continued understanding and cooperation in our business activities.

In fiscal 2013, our company launched our Seventh Medium-term Management Plan toward the realization of our new dream. The plan is to become a “global SANYO DENKI” and build the world’s leading brand. As a company, we must fulfill our social responsibilities in society, and particularly our environmental responsibilities, which is a foundation on which to build a world-class top brand. To promote our business activities and fulfill our social responsibilities, our environmental activities are incorporated into our business framework so that our business itself is directly linked to the environmental activities. We also are making efforts to clarify the environmental impact of our business activities for the purpose of global environmental conservation.

Last year, a feed-in tariff system for renewable energies entered into force, and the demand for photovoltaic power (PV) generation systems has been rapidly growing. To meet the increasing demand, we are enhancing production of PV Inverters. We have introduced a 150kW PV power generation system at both our Kangawa Works and Fujiyama Works, and the generated power is being used in those factories. We plan to install more systems in the future.

What energy means and how people consider energy use are changing. We are entering an era of energy saving and energy management, in which we will increasingly use renewable energies, fuel efficient vehicles, expanded electric mobility, use of accumulators, leveling of electric power, use of regenerative power, and energy management using peak-cut or grid devices. We believe we can contribute to better energy use by incorporating the power conversion and power leveling technologies we have been developing for many years into our future products.

Our company has also introduced a reduction management system for direct resources, including power consumption, copier paper, waste, etc., at various locations. For development of new products, we established an environmental assessment standard to identify products satisfying certain assessment criteria as “Eco Products.” Basically, all new products are designed to be certified as Eco Products. Eco Products are designed to be environmentally-friendly. This will not only enhance the competitiveness of our products, but also help our customers to be involved in reducing the global environmental impact. We have introduced a number of Eco Products featuring low power consumption, high precision, high performance, and long life.

In fiscal 2013, factory buildings at our Fujiyama Works were refurbished, and a part of the Shioda Works were integrated into the Fujiyama Works. Our Head Office is also scheduled to relocate. Environmental changes due to such integration and relocation will be monitored. We actively promote and conduct environmental preservation activities. We believe that management transparency through disclosure of environmental information is important, and is part of our responsibility to society. These environmental preservation activities reduce the environmental impact over our product’s life cycles, and reuse of resources leads to reduction in total energy use.

Thank you for your understanding and cooperation in our efforts towards environmental management.

Director and Major Operating Officer  
Nobumasa Kodama

児玉展全

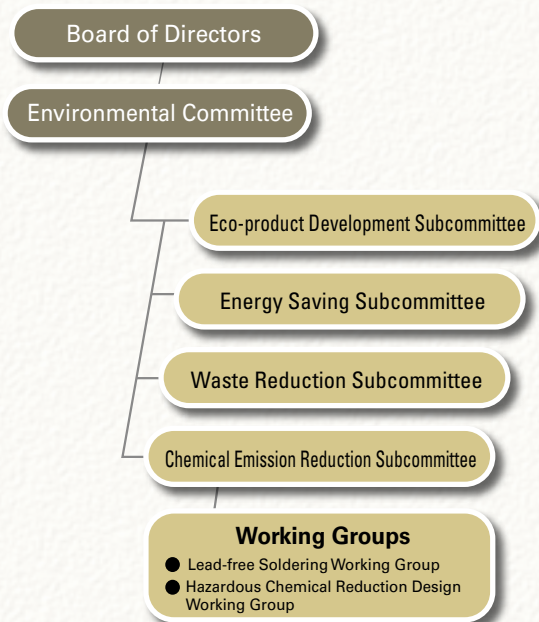




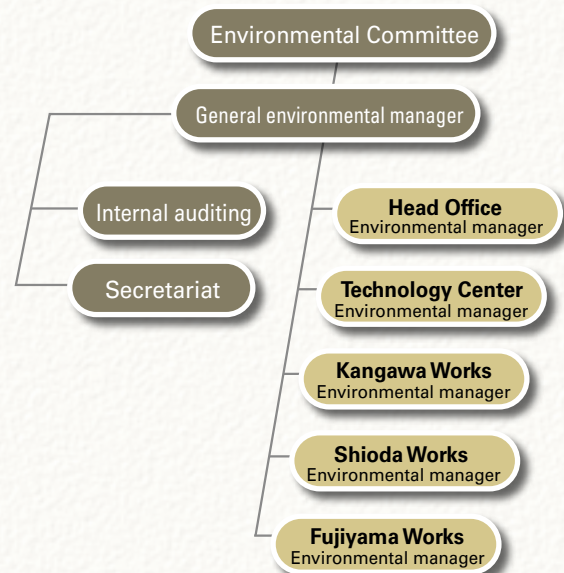
## Scheme of Environmental Management System



## Position of the Environmental Committee and Its Organization



## Organization Chart for Environmental Management System



- Eco-product Development Subcommittee**  
 The subcommittee promotes the development of competitive products designed to protect the environment in accordance with eco-design standards.
- Energy Saving Subcommittee**  
 The subcommittee promotes energy saving through its daily activities for the environmental management system. It also formulates long-term energy saving strategies and proposes cost-effective investments.
- Waste Reduction Subcommittee**  
 The subcommittee works to reduce waste and disposal costs and achieve zero emissions.
- Chemical Emission Reduction Subcommittee**  
 The subcommittee 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 PRTR (pollutant release and transfer register).

# Activity Report for Fiscal 2012

We developed 18 new certified Eco-products in this fiscal year and were also able to raise the sales ratio for Eco-products to 31.4%. We achieved a 99.1% level of zero emissions for the company as a whole.

Activity	Goal for fiscal 2012	Track record in fiscal 2012	
Promotion of eco-designing	Creation of Eco-products	Eighteen new products certified as Eco-products	
Sales activities	Sales ratio of Eco-products: 50% or higher	Sales ratio of Eco-products: 31.4%	
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	5%	25%
	Shioda Works	20%	33%
	Fujiyama Works	11%	23%
	Technology Center	(5%)	(7%)
	Head Office	9%	12%
Reduction in fuel consumption	A-type heavy oil : 261kl * Total of the Shioda and Fujiyama Works	21%	16% A-type heavy oil : 277kl
	LPG : 38,000m <sup>3</sup> N * Total of the the Technology Center	49%	50% LPG : 41,400m <sup>3</sup> N
	Town gas : 690,000m <sup>3</sup> N * Total of the the Kangawa Works	3%	12% Town gas : 623,000m <sup>3</sup> N
Reduction in the use of copying paper	Kangawa Works	(40%)	(20%)
	Shioda Works	(9%)	23%
	Fujiyama Works	26%	24%
	Technology Center	27%	19%
	Head Office	41%	43%
Reduction of waste	Kangawa Works	(15%)	15%
	Shioda Works	6%	15%
	Fujiyama Works	52%	56%
	Technology Center	27%	47%
	Head Office	49%	50%
Contribution to local communities	Cleaning of areas around the Head Office, the Technology Center and the factories conducted more than once every month	Goal achieved	
Promotion of zero emission	Raising the company-wide waste recycling rate 99.0% or higher.	Company-wide rate: 99.1%	

Notes: 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.  
2. Figures in parentheses indicate increases.

## 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 improvement of energy use efficiency and energy saving activities. In fiscal 2012, as compared with the previous fiscal year, electric power consumption dropped as the result of decreased output, and CO2 emissions were reduced as well. The unit cost for output remained almost the same.

## Results of introduction

- We selected and introduced a hybrid system product to replace the hydraulic pumps on the cooling fan blade assembly line at our Fujiyama Works. Electricity consumption was reduced by cutting power while the pumps were idle.
- We developed and introduced in-house electrical equipment using our own servo motors instead of the former hydraulic method. Electricity consumption was subsequently reduced.
- We analyzed equipment operating states using the energy management system newly introduced in the Kangawa Works to reduce unnecessary power consumption of systems and equipment.

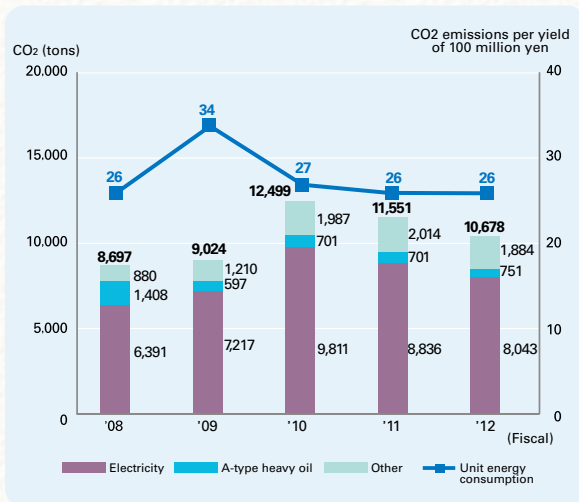


Fujiyama Works  
Hydraulic pump for cooling fan blade assembly line

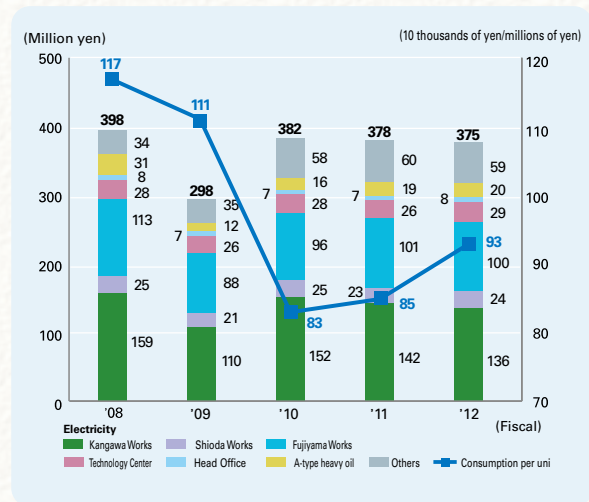


Kangawa Works  
Factory equipment installation

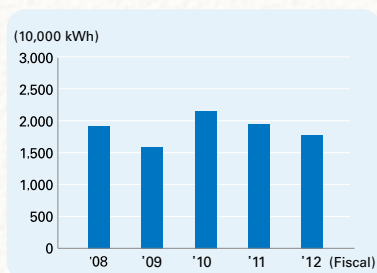
## Energy consumption measured in terms of the amount of CO2



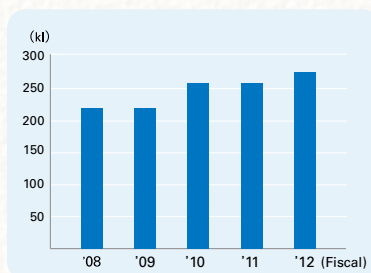
## Consumption value per production value



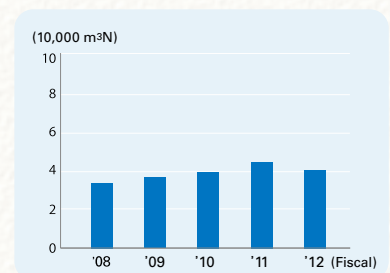
## Power consumption



## A-type heavy oil



## LPG



## Energy Saving Measures Implemented in Manufacturing Processes at Factories

Works	Measures implemented	Effect
Kangawa Works	<ul style="list-style-type: none"> <li>(1) Cut down unnecessary lighting in warehouses and on equipment</li> <li>(2) Lower air-pressure setting</li> <li>(3) Repair air leaks</li> <li>(4) Promote use of solar power</li> </ul>	<ul style="list-style-type: none"> <li>(1) Savings in commercial electricity</li> <li>(2) Savings in commercial electricity</li> <li>(2) Savings in commercial electricity</li> <li>(4) Savings in commercial electricity</li> </ul>
Shioda Works	<ul style="list-style-type: none"> <li>(1) Affixing calendar timers to machines</li> <li>(2) Redesigning of mounter programs</li> <li>(3) Miniaturize the equipment to be newly installed</li> <li>(4) Systematic operation of boilers according to weekly calendar timers</li> </ul>	<ul style="list-style-type: none"> <li>(1) Savings in electricity by preventing switches from being left on</li> <li>(2) Savings in electricity by reducing the production cycle time</li> <li>(3) Save energy through miniaturization of heater capacity</li> <li>(4) Control of use of A-type heavy oil</li> </ul>
Fujiyama Works	<ul style="list-style-type: none"> <li>(1) Stop use of unnecessary lighting</li> <li>(2) Adjustment of the operation time of air conditioners</li> <li>(3) Shift the operating hours of production equipment</li> <li>(4) Adjust the operating hours of loading equipment for test</li> <li>(5) Promote use of solar power</li> </ul>	<ul style="list-style-type: none"> <li>(1) Savings in electricity by reducing lighting hours</li> <li>(2) Savings in electricity by reducing operation hours, Reduce the consumption of A heavy oil</li> <li>(3) Savings in commercial electricity</li> <li>(4) Saves electric power by reviewing the test run time</li> <li>(5) Savings in commercial electricity</li> </ul>



Solar panels at Kangawa



PV Inverter at Fujiyama Works

## Transportation

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



Signboard for idling stop



Vehicle that complies with the regulations on diesel car exhaust in seven municipal communities



Electric automobiles



Vehicle that complies with the regulations on diesel car exhaust



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) and analyze these costs and effects in order to improve the efficiency and activity levels of environment management.

“Environmental Accounting Guidelines” published by the Ministry of the Environment, Format for publication C  
Data range (company-wide)

Period covered: April 1, 2012 to March 31, 2013

## Performance in fiscal 2012

### 1) Environmental Conservation Costs

Environmental Conservation Costs in fiscal 2012 were 999 million yen in total: 119 million yen for Investment and 880 million yen for Costs and Expenses. As for Investment, we not only spent money on company-owned electric vehicles as a Global Environmental Conservation Cost, but also spent R&D money in order to develop Eco Products. As for Costs and Expenses, R&D costs and Management Activities costs posted the high rates of 64.4% and 23.7%, respectively.

### 2) Environmental Conservation Effects

Due to decreases in production output of some factories, effects concerning Resources Used for Business Activities became positive, except for Consumption of Heavy Fuel Oil A and Light Oil Consumption. In particular, Introduction of Energy has reduced CO2 emissions by 842t, and electric power consumption by 1.73 million kWh, as compared with the previous fiscal year.

### 3) Economic Effects

Due to decreases in production output of some factories, Reduction in Expenses by Energy Saving has decreased about 25% year-over-year to 3 million yen. Meanwhile, profits from sales of valuable resources were 70 million yen, down about 30% from the previous year.

## 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	20,419
	2. Global environment conservation costs Periodical electricity checks	21,870	24,428
	3. Resource recycling costs Reduction of waste, recycling, and proper waste disposal	0	41,586
	<b>Total of items 1 through 3</b>	<b>21,870</b>	<b>86,433</b>
(2) Upstream and downstream costs	Green procurement of office supplies and commissions for refurbishing and reconditioning product	0	14,921
(3) Administration costs	Development and operation of the EMS and environmental training for employees	0	208,942
(4) R&D costs	Development of Eco-products (such as testing equipment and making molds)	97,398	566,745
(5) Social activity costs	Annual membership fee for the Japan environmental management association for industry, and other fees	0	3,252
(6) Environmental damage measure costs	Assessment of soil contamination, and expenditures	0	0
<b>Total</b>		<b>119,268</b>	<b>880,293</b>

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 (Note1)
Effects on resources input for business activities	Input of energy	Decrease in energy consumption	Energy consumption measured in terms of the amount of CO2 : 842 tons of CO2 Electricity consumption : 1,730,000kWh A-type heavy oil consumption: △ 30.5kL LPG consumption: 28.3t Kerosene consumption : 10.6kL Light oil consumption : △ 19.6kL Town gas consumption : 65,800Nm <sup>3</sup> Gasoline consumption : 0.4kL
		Increase in the percentage of renewable energy in total energy consumption	Photovoltaic power generation : 0.31% (company-wide)
	Input of water	Decrease in water consumption	Water consumption : 4,300m <sup>3</sup>
	Input of other resources	Decrease in the input of other resources	Copying paper consumption : △ 90,000 sheets
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 : 934t
		Increase in the percentage of recyclable materials in the total discharge of waste	Recyclable materials and useful materials: △ 0.79%
		Decrease in the discharge of hazardous waste	Discharge of hazardous waste : △ 1.9t

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

(Note1) If the measure of the amount will be stated as the difference between 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	70,520	
Reduction of costs	Reduction of costs by energy saving	3,350
	Reduction of waste disposal costs by recycling	△ 925
	Reduction of expenses for copying paper	△ 886

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

## 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 2012, Eco-products were made up of a total of 169 types.

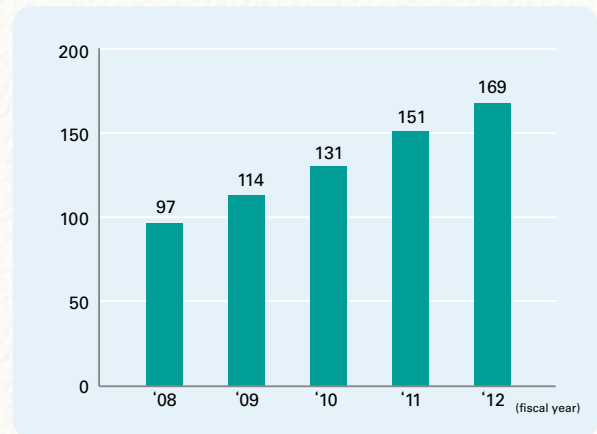
Eco-products are presented in catalogues and other materials with "LEAF symbols."



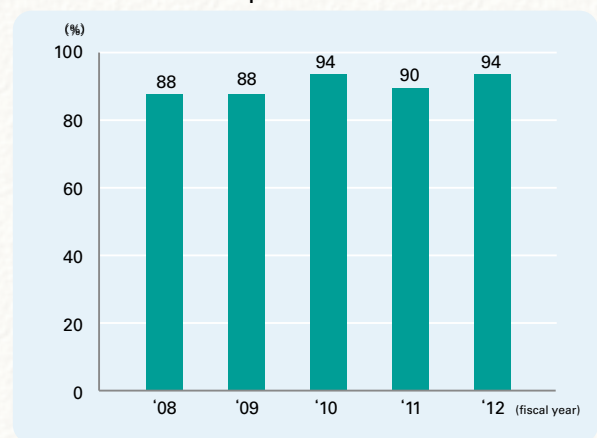
### Life Cycle Assessment (LCA)

LCA is one of the techniques used to provide a general quantitative measure of levels of environmental impact, including global warming, and evaluate the impact of products through their life cycles. We evaluate the environmental compatibility of a product using this method. Our rate of implementing LCA in our Eco-products has been about 90% since fiscal 2007.

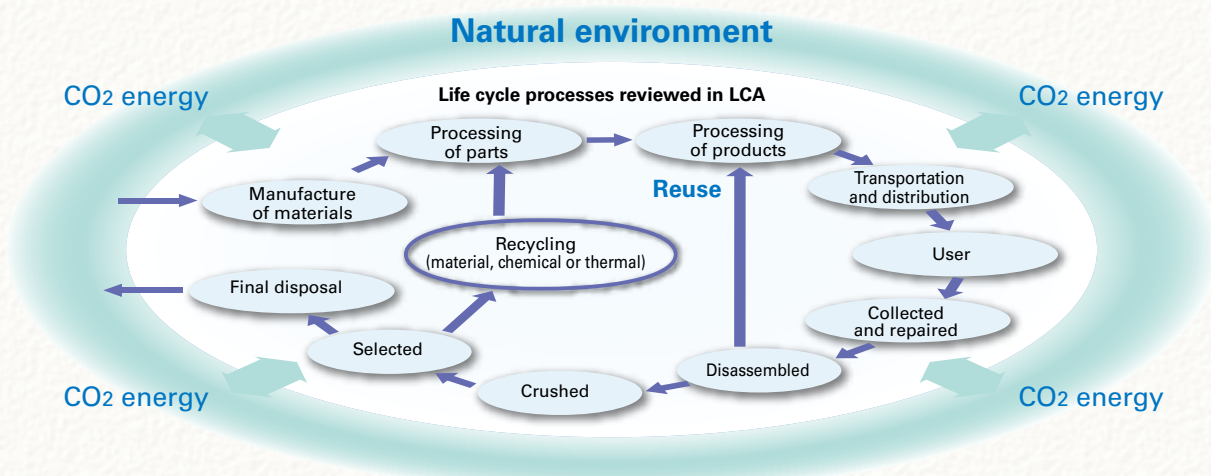
Number of Products Certified as Eco-products  
(Total Number of Products in All Divisions)



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 the energy consumption and the amount of CO<sub>2</sub> emission.

## Representative Eco-products of Fiscal 2012

### Results of LCA

Eighteen new Eco-products were developed in 2012. We will present the results of the LCA of three representative products. The results are based on a comparison of the amounts of CO<sub>2</sub> 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 CO<sub>2</sub> emitted during the time of use will be effective in preventing global warming. The following results show the CO<sub>2</sub> emission volumes for one year (result of LCA divided by the service life of a product).

### 32x32x28mm Low Power Consumption Fan "San Ace 38" GA type



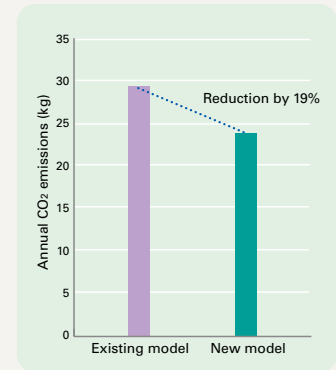
#### ■ Features

- Reduces power consumption by about 35% as compared with conventional models
- Achieves noise reduction of 1.5dB(A)
- Compliant with RoHS

#### ■ Models compared for LCA

New model : 9GA0.12P7J001  
Existing model : 9GV0312P3K01

Comparison of CO<sub>2</sub> emission



### LAN interface card



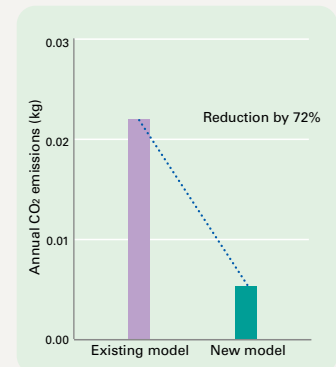
#### ■ Features

- Enhances security (supports SSL)
- Reduces the mass by about 42% as compared with conventional models
- Reduces the substrate size by about 45.5% as compared with conventional models
- The conductive noise of the LAN port is compliant with VCCI Class A

#### ■ Models compared for LCA

New model : PRLANIF003  
Existing model : PRLANIF001

Comparison of CO<sub>2</sub> emission



### 220 mm sq. AC servo motor "SANMOTION R"



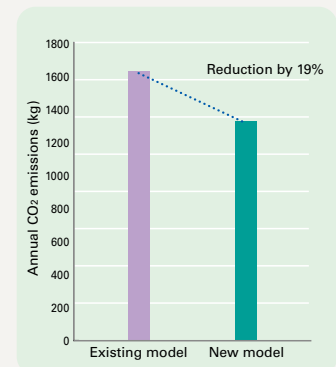
#### ■ Features

- Shorter by 17% as compared with conventional models
- Reduces power consumption by 18.6% as compared with conventional models
- Compliant with RoHS

#### ■ Models compared for LCA

New model : R2AA2215KB  
Existing model : Q2AA2215KR

Comparison of CO<sub>2</sub> emission



## 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 Chemical Substance Management 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 (JGPSSI).

We keep these guidelines up-to-date by making necessary revisions in response to changes in relevant laws and regulations. (Revisions were made twice in 2012.) 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 Chemical Substance Management 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 Working Group, a subordinate body of the Chemical Substance Emission Reduction Subcommittee, is working together with the design sections of individual divisions to focus on eliminating all substances banned by the RoHS directive.

● Compliance of applicable products with the RoHS directive

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.

● An examination of substances designated by the Japan Green Procurement Survey Standardization Initiative (JGPSSI) and other organizations will be conducted at 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.

● Using an X-ray fluorescence analyzer (XRF), six RoHS substances contained in materials are being analyzed.

● SVHC materials (high-concern materials: 138 substances) listed in REACH are being investigated to provide information for our customers.

\*RoHS Directive (DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restrictions on 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: A Chinese government regulation

\*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.



An X-ray fluorescent analysis device at the Kangawa Works



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

## Compliance with the PRTR

Our company registers and reports the amount of discharge and transportation of reportable PRTR-controlled substances when over one ton annually at a factory is consumed. In fiscal 2012, it became necessary to report the use of Styrene at the Kangawa Works, and Antimony and its compounds and Triphenyl phosphate at the Fujiyama Works.

Lead has not been required to be reported for the last six years because of 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	6.8t
Antimony and its compounds	Fujiyama Works	2.8t
Triphenyl phosphate	Fujiyama Works	2.3t

## Zero-emission Activities

Sanyo Denki is working as a member of the Zero-emission Promotion Committee and the Zero-emission Promotion Workshop (formed in April 2003) of the Nagano Techno Foundation\* Asama Technopolis Region Center to promote environmental conservation activities in collaboration with companies in the surrounding areas.

The Zero-emission Promotion Workshop holds sessions for activity reports and makes inspection visits to member companies to see how waste is sorted by type and processed, and carefully examines how to improve waste disposal methods. The Workshop has eight subpanels to study the cooperative collecting and disposing of waste. Seven sub-panels were established in the Workshop last year to study the cooperative collecting and disposing of waste.

\*The Nagano Techno Foundation was established to bring new life to the local economy and provide an autonomous basis for its development. To this end, the foundation is working to improve the level of local industries through technological innovation and develop new industries by exploiting local industry resources in five areas in Nagano Prefecture. The Asama Technopolis Region Center is one of its organizations.

[Nagano Techno Foundation]

URL: <http://www.tech.or.jp>

[Asama Technopolis Region Center]

URL: <http://www.tech.or.jp/asama/>

## Recycling

We created a recycling to promote the 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.

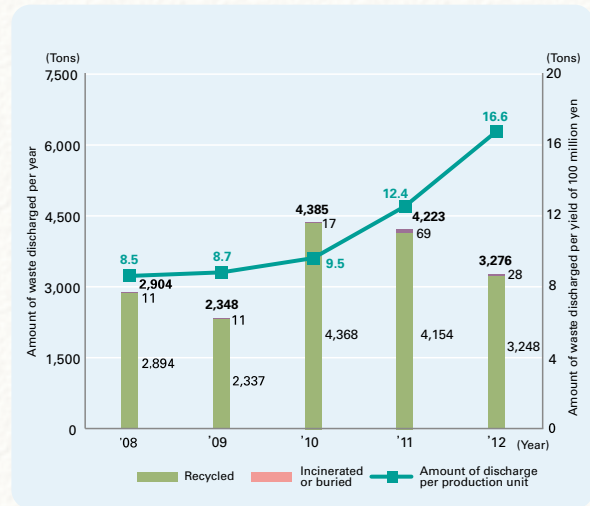
### [Other examples of reuse of materials]

Cardboard boxes: returned to suppliers

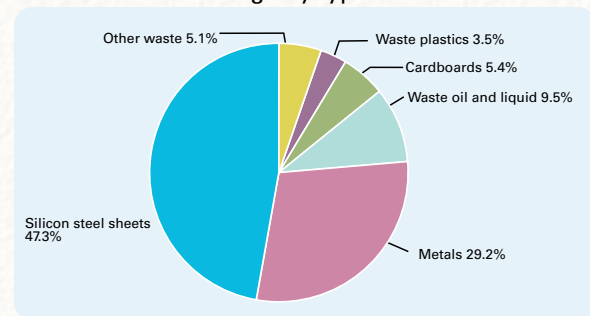
Shock absorbers: reused within the company

Inscription board mounts: recycled

## Changes in the Amount of Waste Discharged



## Percentage by Type of Waste



Waste		Amount discharged (tons)	Amount recycled (tons) / Recycling rate (%)	Recycling method
Sludge	Organic sludge	5.2	5.2/100	After oil and water are separated, dehydrated residues are turned into compost.
	Inorganic sludge	29.2	12.2 /42	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 oil	Oil-based materials	4.0	4.0/100	After oil and water are separated, the material is recycled as fuel.
	Water-soluble materials (detergents, grinding liquid, etc.)	246.4	246.4 /100	Reuse and incinerated residues are used as cement materials.
	Volatile materials	9.0	9.0 /100	Distilled and used as recycled oil.
	Waste acid (batteries)	52.6	52.6 /99.9	Crushed, sorted and all recycled.
Waste plastics	OA equipment and circuit boards	21.5	21.5/100	Crushed, sorted and all recycled.
	Vinyls and films	46.0	45.9 /99.95	
	Molding scraps	33.6	33.6/100	Turned into solid fuel (refuse derived fuel), reducing agents (using furnaces) and materials for power generation (thermal recycling)
	Other solid scraps	10.5	10.5/92	
Metal scraps	Styrofoam	4.4	4.4/100	Turned into raw materials (material recycling); immersed in solvent to be turned into soil, and recycled as raw material
	Scraps generated in manufacturing processes	2505.1	2505.1/100	Recycled as metal materials
Paper scraps	Metals (including empty cans)	1.0	1.0/100	
	Used paper	7.1	7.1/100	
	Newspapers, magazines, and other papers	50.0	50.0/100	Turned into raw materials for recycled paper
Wood scraps	Cardboards	176.3	176.3 /100	
	Packages and transportation pallets	60.7	60.7/100	Crushed and turned into combustion improver
Glass and ceramic scraps	Empty bottles, glass, and ceramics	2.4	2.4 /100	Crushed and turned into road construction materials
Other waste	Paper scraps and other waste	11.3	0/0	Incinerated
Total		3276.2	3247.9/99	

## 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 more than 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 problem as well as counter measures for global warming. Sanyo Denki performs energy-saving activities and makes efforts by using our resources including our technologies and products.



Outdoor cleaning activities(Head Office)



Outdoor cleaning activities(Ueda Area)

## 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 2011, we held the following company lectures and meetings:

- August 2012

Lecture on designs to reduce hazardous chemical substances (Recent trends of chemical substances and the RoHS Directive and REACH)

- March 2013

Briefing session on Eco-products



Company lecture



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 on self-care for managers and other employees, and counseling by nurses.

#### ◆ Installation of automatic external defibrillators (AED)

Automatic external defibrillators are installed at the Head Office and the Ueda branch office (for the Technology Center and the factories).

In addition, to be able to act quickly in unexpected situations, training sessions on general emergency life-saving methods are periodically provided.

#### ◆ Training and drills

Emergency drills



AED



Training on general emergency life-saving methods



# Goals for Fiscal 2013 and Challenges for the Future

We created 18 eco-design products (Eco-products) in fiscal 2012, a year during which 31.4% 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 2013	Goals to be achieved by fiscal 2015
Promotion of Eco-products	Creation of Eco-products	Creation of Eco-products
Sales activities	Sales ratio of Eco-products: 40% or higher	Sales ratio of Eco-products: 50% or higher
Reduction of hazardous chemical substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS-6 standards Reduction of PRTR-controlled substances	Promotion of the use of lead-free solder Implementation of measures to meet the RoHS-6 standards Reduction of PRTR-controlled substances
Reduction in power consumption	Reduction by 7% compared to 2006	Reduction by 9% compared to 2006
Reduction in fuel consumption	Maintaining the consumption of LPG at the current level (reduced by 52% compared to 2000)	Maintaining the consumption of LPG at the current level (reduced by 52% compared to 2000)
	Maintaining the consumption of A-type heavy oil at the current level (reduced by 21% compared to 2000)	Maintaining the consumption of A-type heavy oil at the current level (reduced by 21% compared to 2000)
	Gas consumption Reduction by 6% compared to 2010	Gas consumption Reduction by 8% compared to 2010
Reduction in copier paper consumption	Maintaining the consumption at the current level (reduced by 15% compared to 2000)	Maintaining the consumption at the current level (reduced by 15% compared to 2000)
Reduction of waste	Maintaining the consumption at the current level (reduced by 0% compared to 2000)	Maintaining the consumption at the current level (reduced by 0% compared to 2000)
Contribution to local communities	Cleaning of the area around factories once or more every month Participation in environment-related events	Cleaning of the area around factories once or more every month Participation in environment-related events
Promotion of zero-emission	Maintaining a company-wide waste recycling rate at 99.6% or higher	Maintaining a company-wide waste recycling rate at 99.6% or higher

The number of employees is as of June 2013.

## Head Office

- Location : 3-33-1 Minami-otsuka, Toshima-ku, Tokyo
- Area : 1,761m<sup>2</sup>
- Number of employees : 216
- ISO certificate obtained : March 2002



## Kangawa Works

- Location : 5-4, Tonoshiro, Ueda-shi, Nagano
- Area : 67,141m<sup>2</sup>
- Number of employees : 650
- ISO certificate obtained : March 2010
- Products manufactured: AC/DC servo amplifiers, stepping motor, linear servo motor, and encoders



## Shioda Works

- Location : 517 Goka, Ueda-shi, Nagano
- Area : 5,698m<sup>2</sup>
- ISO certificate obtained : March 2001
- Products manufactured: power conditioners for photovoltaic power generation systems



## Technology Center

- Location : Ueda Research Park, 812-3 Shimonogo, Ueda-shi, Nagano
- Area : 44,908m<sup>2</sup>
- Number of employees : 332
- ISO certificate obtained : November 1999

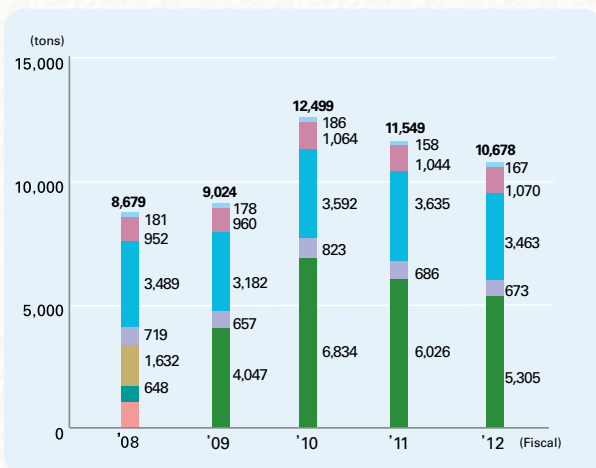


## Fujiyama Works

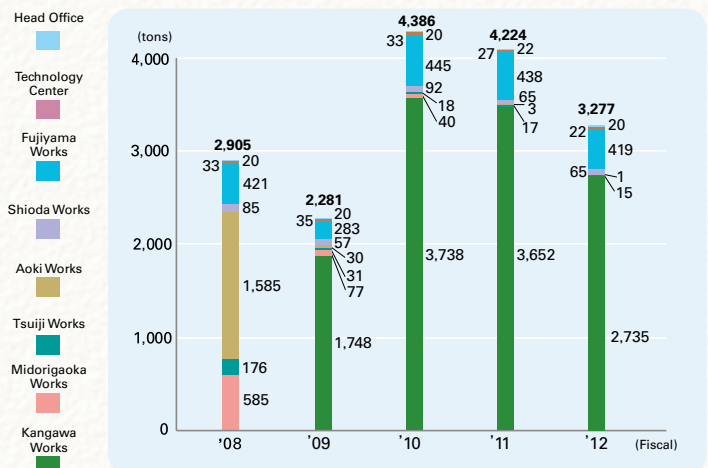
- Location : 4016 Fujiyama, Ueda-shi, Nagano
- Area : 99,828m<sup>2</sup>
- Number of employees : 535
- ISO certificate obtained : December 1999
- Products manufactured: Cooling fans, UPS's (uninterruptible power supply devices), power conditioners for photovoltaic power generation systems, emergency self-power generation systemstion systems, power source monitoring systems, AC/DC servo amplifiers, stepping drivers and system controllers.



Amounts of CO<sub>2</sub> emission by factory



Amounts of waste by factory



## 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 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.



## Head Office

Kazutomi Kaneko

The Head Office being in the power supply area of the Tokyo Electric Power Co., Ltd. aims at the demand value of the last year. In addition to providing support for improving the sales ratio of Eco-products and for local environmental activities, the Head Office prioritizes measures to save energy and reduce waste and copier paper consumption.

- Improvement in the sales ratio of Eco-products by supporting sales activities
- Proper temperature management for air conditioning
- Improvement in the sorting of waste and the recycling rate
- 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

Our Technology Center is engaged in 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 18 new items as Eco Products in fiscal 2012. 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 copier 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

The Kangawa Works is working to reduce lighting energy savings due to thinning, of waste, reduction of copy paper, the promotion of zero emission.

In the motor assembly, inspection, guidance system by expanding the production and inspection, check sheet of paper is eliminated, could reduce the copy paper.

Has implemented large-scale volunteer continued cleaning of the surrounding area.

Will continue working to reduce environmental load further using the data of BEMS central monitoring system can monitor bulk energy consumption.



## Shioda Works

Masami Ando

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 copier paper (use of projectors, use of electronic means for checking progress, and reuse of the backs of printed paper)
- 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 standards
- Volunteer activities for cleaning areas around the factory
- Reduction of incinerated waste



## Fujiyama Works

Satoshi Atou

The Fujiyama Works is reducing its environmental burden by improving fundamental work activities, and is working on the promotion of activities to save energy, reduce waste, and achieve zero-emissions. In this fiscal year, a production line related to the Servo System Division at the Shioda Works was relocated to the Fujiyama Works (new F2 building). The energy used at this factory has changed dramatically, so we have introduced a system to monitor power consumption for individual buildings in detail.

- Energy saving (a reduction in the consumption of electricity and A-type heavy oil for air conditioning).
- Reduction in the consumption of lead by using lead-free solder
- Reduction of waste (reduction of waste plastics and cardboards) and zero emission activities
- Use of components and materials meeting the RoHS standards
- 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 <sup>3</sup> N)	Exempted			Air Quality Air pollution control laws and ordinances	Smoke and soot (g/m <sup>3</sup> N)	0.3	0.03	0.0023
	Nox(ppm)	Exempted				Nox(ppm)	180	130	82
	Sox(m <sup>3</sup> N/h)	Exempted				Sox(m <sup>3</sup> N/h)	1.3	0.7	0.013
Water Quality Water pollution control laws, ordinance and agreements	PH(pH)	5.8 to 8.6	—	7.7	Water Quality Water pollution control laws, ordinance and agreements	PH(pH)	Exempted (No water disposal tank)		
	BOD(mg/L)	20	19	17.0		BOD(mg/L)	Exempted (No water disposal tank)		
	SS(mg/L)	30	28	23.0		SS(mg/L)	Exempted (No water disposal tank)		
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	61	Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	56

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 <sup>3</sup> N)	0.1	0.08	0.0030	Air Quality Air pollution control laws and ordinances	Smoke and soot (g/m <sup>3</sup> N)	0.3	0.03	0.0077
	Emergency power generation equipment smoke and soot (g/m <sup>3</sup> N)	0.05	0.045	0.0068		Nox(ppm)	180	130	71
	Cold and hot water generator Nox(ppm)	150	130	77		Sox(m <sup>3</sup> N/h)	5.0	2.5	0.041
	Emergency power generation equipment Nox(ppm)	600	550	100	Water Quality Water pollution control laws, ordinance and agreements	PH(pH)	5.8 to 8.6	—	7.8
	Sox(m <sup>3</sup> N/h)	Exempted				BOD(mg/L)	50	48	9.6
Water Quality Water pollution control laws, ordinance and agreements	PH(pH)	5.8 to 8.6	—	7.6	SS(mg/L)	60	54	14.0	
	BOD(mg/L)	20	19	11.0	Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted
	SS(mg/L)	60	54	9.0					
Noise Laws, ordinances and agreements for noise regulation	(dB)	65	64	Exempted					

## 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, drivers, and encoders

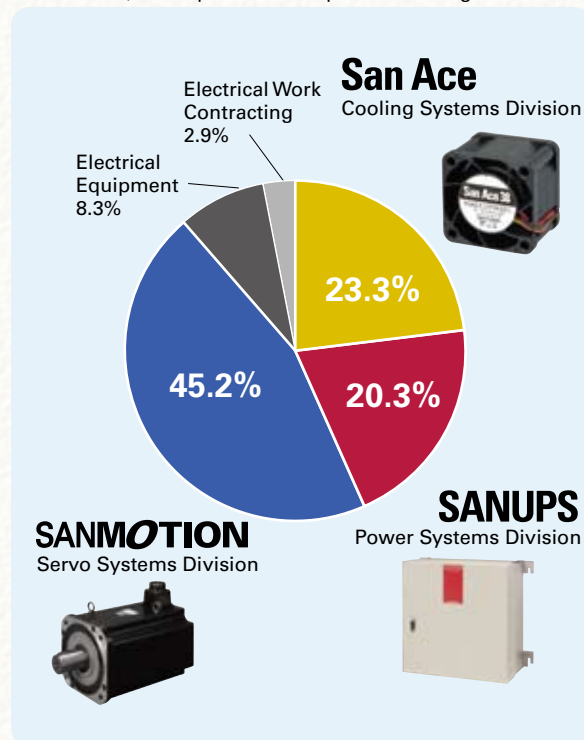
### ■ Electrical Equipment

Sales of domestic and foreign manufacturers of electrical and electronic

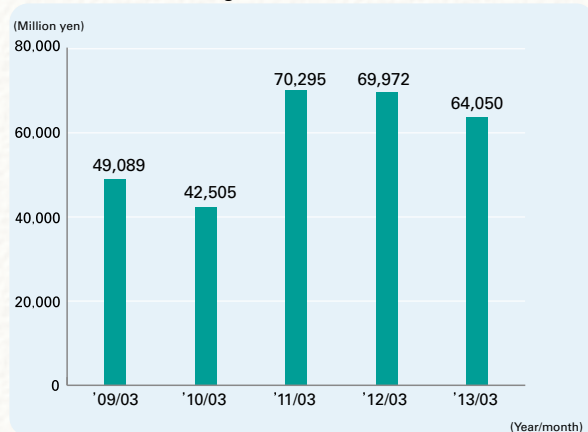
### ■ Electrical Work Contracting

The planning, design, construction and maintenance of industrial control systems

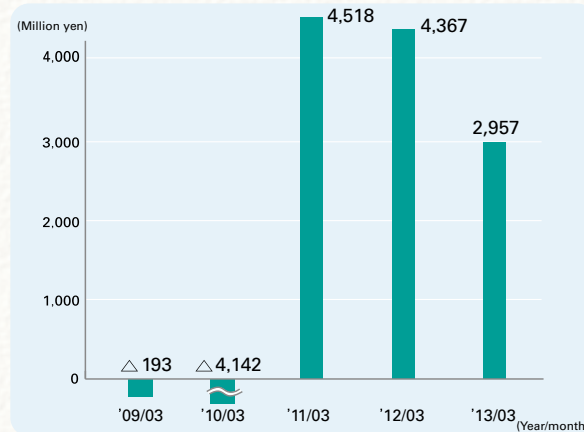
Sales Ratio (for the period from April 2012 through March 2013)



Changes in Sales (Consolidated)



Changes in Current Net Income (Consolidated)



## Company Profile

**Founded:** December 31, 1936

**Capital:** 9.9 billion yen (as of March 31, 2013)

**Sales (consolidated):**

64 billion yen (for the period from April 2013 through March 2012)

**Number of employees (consolidated):**

2,876 (as of March 31, 2013)

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