DENSO

DENSO CORPORATION
Environmental Report 2000

Environment

Corporate Profile

Corporate name: DENSO CORPORATION
Date of Establishment: December 16, 1949
Capitalization: ¥173.0 billion
Number of Employees: 39,500 (Non-Consolidated)
80,700 (Consolidated)

Note: Figures for capitalization and number of employees are as of March 31, 2000; values under ¥100 million have been rounded down.

Financial Results (Non-Consolidated)
Net Sales: ¥1,386.9 billion
Recurring Profit: ¥76.9 billion

Financial Results (Consolidated)
Net Sales: ¥1,883.4 billion
Recurring Profit: ¥115.9 billion

Note: Figures for net sales and recurring profit are as of March 31, 2000; values under ¥100 million have been rounded down.

Principal Businesses
Automotive Components Business:
Air conditioners and heaters, electrical automotive and electronic control products, fuel management systems, radiators, meters, filters, and other

New Business Domains:
Cellular telephones and other telecommunications equipment, factory automation (FA) systems, applied electronics, and environmental systems

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A Message from the President

At DENSO, we have been combining environmental considerations with our business efforts from an early stage. In particular, since the 1960s, when constructing new manufacturing plants both in Japan and overseas, the Company has maintained “strict compliance with local environmental standards” and “consideration for local residents” as the first rules of its business operations. We consistently implement environmental initiatives, such as the in-house treatment of wastewater. We have also put our efforts into numerous product developments to fulfill emissions restrictions and other regulations and requirements.

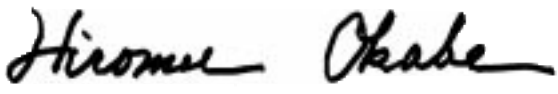
It is DENSO’s belief that, in the course of business activities, corporations must quickly identify the true wishes of society and conduct their operations in accordance with those needs. As we enter the 21st century, both consumers and society as a whole are becoming more concerned about environmental issues, and corporations are being called upon to contribute to the formation of a recycle-oriented society, where resources are continually circulated. For its part, DENSO places top priority on measures for environmental conservation. In 1993, the Company enacted its first DENSO Environmental Action Policy and DENSO Environmental Action Plan, and in 1996 it drew up and implemented the Second Environmental Action Plan. As a result, we fulfilled all the requirements of ISO 14001, the international standard for environmental management systems, and became one of the first corporations in Japan’s automotive components industry to achieve ISO 14001 certification at all of its domestic business facilities and principal overseas operations.

Hence, in June 2000 DENSO drew up DENSO EcoVision 2005, which completely overhauls both its Environmental Action Policy and Environmental Action Plan. The pillars of these initiatives strengthen environmental management with respect to consolidated operations, the design and development of environmentally friendly products, the achievement of “clean” factories by further reducing their impact on the environment, and the thorough implementation of external partnerships and information disclosure. The entire DENSO Group will strive to achieve these objectives in the months and years ahead.

Along with these dynamic initiatives, at DENSO, we also see society’s demand for environmental conservation as a tremendous business opportunity. DENSO aspires to become a top-class corporation in every respect in the global business arena. To this end, we have accepted the challenge of becoming the world’s leading manufacturer for fully integrating efficient business systems. Hence, we will further improve our unique technologies to enhance the safety and reliability of our automotive components while, at the same time, striving to achieve the world’s highest level of environmental initiative in our products and manufacturing operations. Through these efforts, we believe that we will be able to augment our competitive strength.

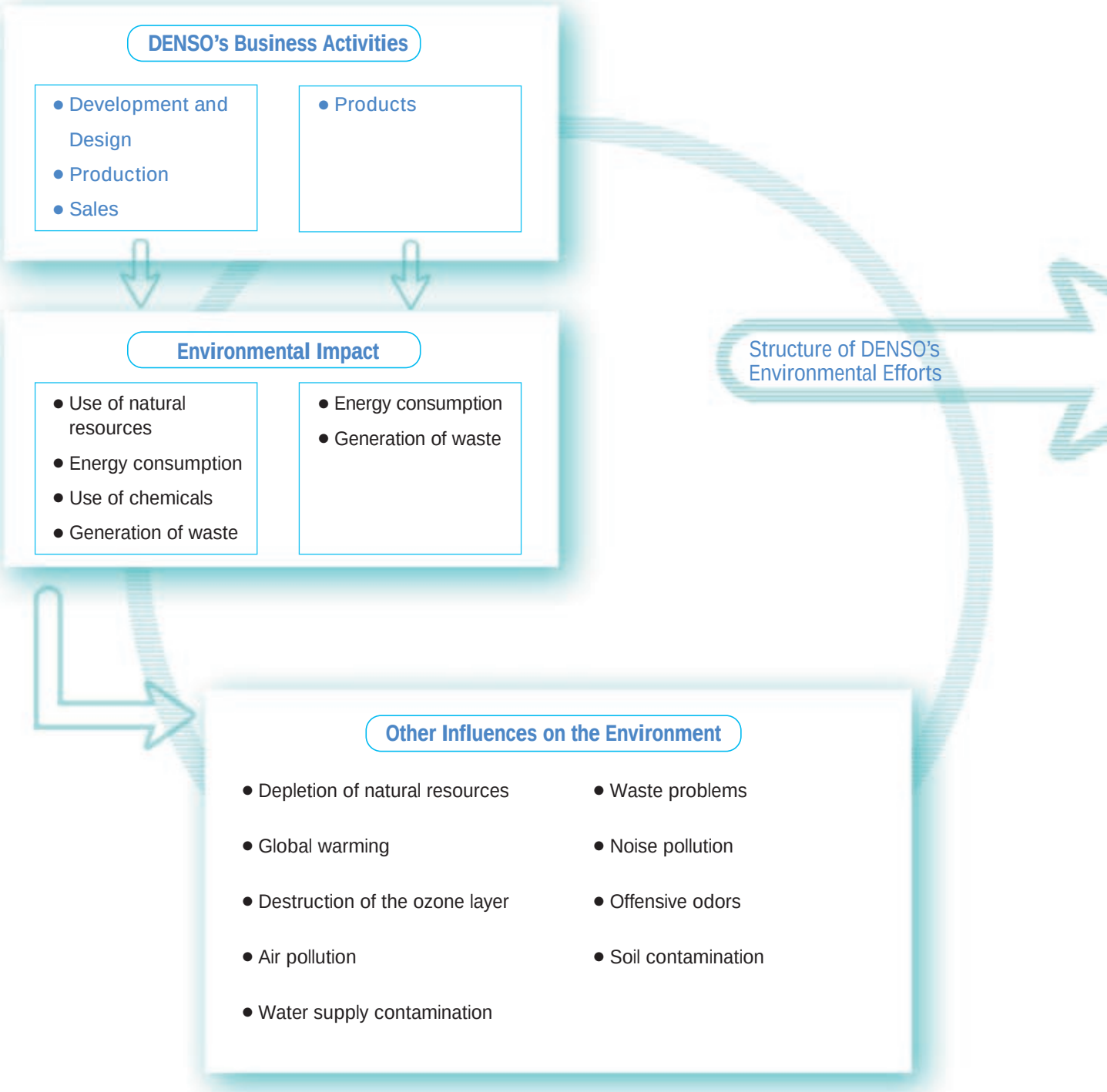
It is my pleasure to present DENSO’s *Environmental Report 2000,* covering fiscal 1999, ended March 31, 2000. Through this report, DENSO hopes to provide readers with an understanding of both its views on environmental protection and specific activities that it has been implementing. We would appreciate hearing your opinions regarding this report, as they are valuable in shaping our future activities.

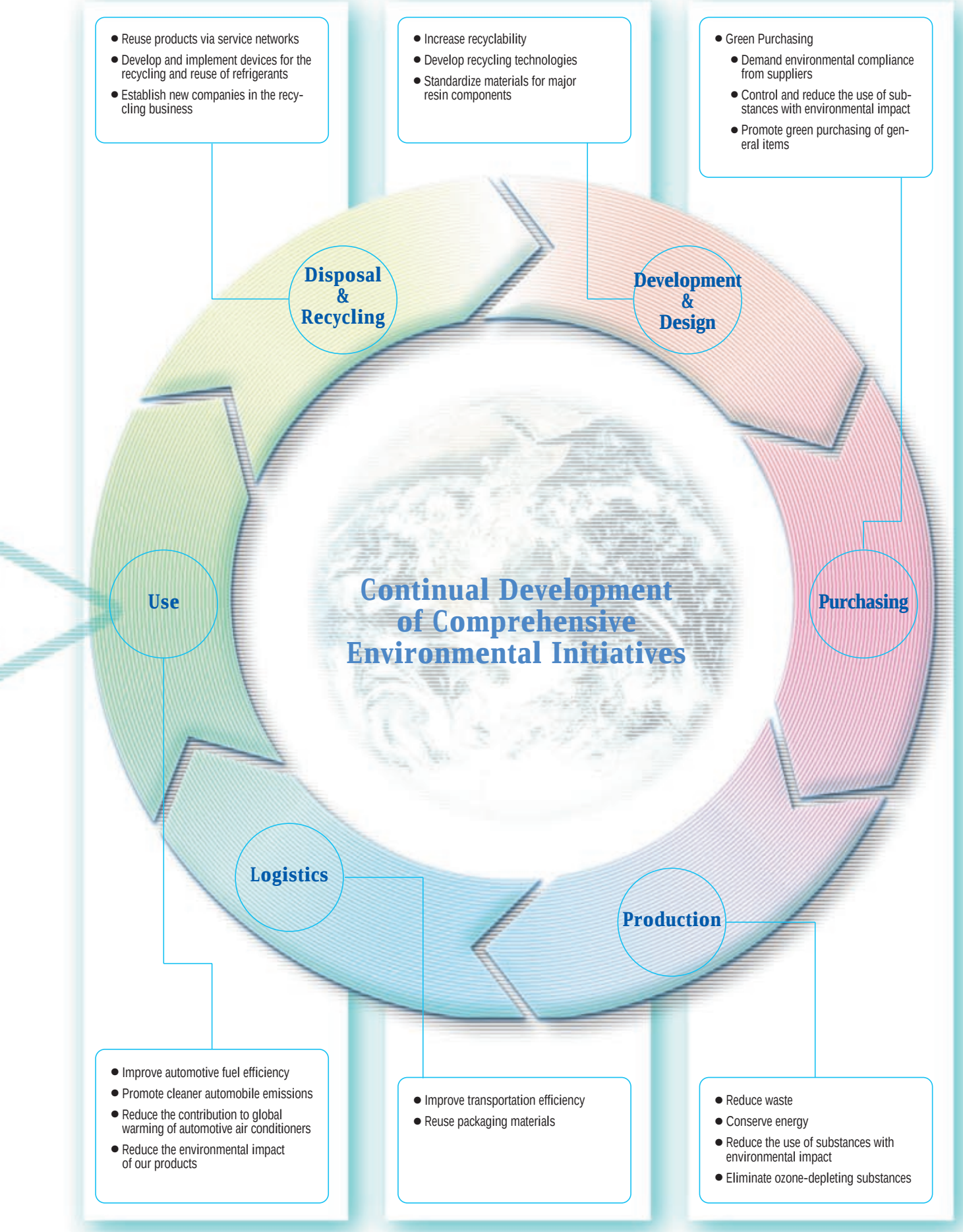
Hiromu Okabe
President



The Relationship between DENSO's Business and the Environment

DENSO has established, and is constantly enhancing, environmental management systems for the entire DENSO Group. Comprehensive efforts are continuously being made to reduce the environmental impact of all our activities, from production through use and ultimately disposal. At the same time, the Company actively promotes external partnerships and information disclosure.




Reuse products via service networks
Develop and implement devices for the recycling and reuse of refrigerants
Establish new companies in the recycling business
Increase recyclability
Develop recycling technologies
Standardize materials for major resin components
Green Purchasing
Demand environmental compliance from suppliers
Control and reduce the use of substances with environmental impact
Promote green purchasing of general items
Disposal & Recycling
Development & Design
Purchasing
Use
Logistics
Production
Continual Development of Comprehensive Environmental Initiatives
Improve automotive fuel efficiency
Promote cleaner automobile emissions
Reduce the contribution to global warming of automotive air conditioners
Reduce the environmental impact of our products
Improve transportation efficiency
Reuse packaging materials
Reduce waste
Conserve energy
Reduce the use of substances with environmental impact
Eliminate ozone-depleting substances

Environmental Management System

Fundamental Thinking

Modern society's rapid economic development has brought material affluence, but we are also faced with such environmental dilemmas as industrial and metropolitan pollution in the form of air and water-supply contamination, the problem of waste generated by mass production and mass consumption, and global warming.

Against this backdrop, DENSO has adopted the principle "to preserve the environment and exist in harmony with society" from the DENSO Philosophy as one of its management policies and has actively involved itself in environmental conservation efforts.

To further clarify our position, in March 1993, in conjunction with our fundamental philosophy, we enacted the DENSO Environmental Charter and the DENSO Environmental Action Plan, through which we have been promoting our environmental efforts.

DENSO also recognizes that not only environmentally friendly manufacturing operations but also the reduction of the environmental impact of products is crucial to solving environmental problems. The Company has long been devoted to enhancing automotive fuel efficiency, cleaning exhaust emissions, and reusing and recycling products, from design and development through use and ultimately disposal.

In the months and years ahead, the entire DENSO Group will embrace the new DENSO EcoVision 2005,* enacted in June 2000, and promote environmental initiatives.

* Please refer to page 6 for more information on DENSO EcoVision 2005.

Fundamental Principles
DENSO Philosophy
DENSO Environmental Charter

Planning and Objectives
DENSO Environmental Action Plan

Environmental Protection Activities and Management
Activities and management based on environmental management system standards (ISO 14001)

DENSO Philosophy

Mission

Contributing to a better world by creating value together with a vision for the future

Management Principles

1. Customer satisfaction through high-quality products and services
2. Global growth through anticipation of change
3. Environmental protection and harmony with society
4. Corporate vitality and respect for individuality

Individual Spirit

1. To be creative in thought and steady in action
2. To be cooperative and pioneering
3. To be trustworthy and improve ourselves

DENSO Environmental Charter (adopted March 1993)

DENSO is profoundly aware that corporate activities deeply affect the earth's environment. Based on its fundamental policy to treasure nature and grow in harmony with the global community, DENSO seeks to meet the needs of both economic development and the environment and thus build a socioeconomic system that is in harmony with the environment. To this end, in all DENSO's worldwide activities it seeks to 1) protect the global environment, 2) give full consideration to the protection of ecosystems and natural resources, and 3) improve the living environment in local communities and ensure the health and safety of both employees and local citizens. The following activities are designed to achieve these objectives.

1. Product Design and Production

Implement prior evaluations and undertake measures to remove destructive influences in all operating activities, from the selection of plant locations to product design, manufacturing, and disposal

1) Prevention of pollution (air, water, waste, noise, vibration, etc.)

2) Elimination of ozone-depleting substances (designated CFCs, trichloroethane, etc.)

3) Effective use of resources:
1. Adopt production processes that reduce industrial waste through recycling
2. Reduce the volume of paper used

4) Reduction of energy consumption by raising efficiency and taking other measures

2. Technological Development

Develop innovative technologies and systems that enable energy and resource conservation and recycling.

3. Public Relations, Awareness Building, and Coexistence with Society

DENSO is implementing public relations and awareness-building programs that target both its employees and society as a whole. By encouraging employees to participate proactively as members of local communities in volunteer activities and promoting communication at all levels of society, DENSO seeks to build a relationship with society for mutual prosperity.

4. Approach

Our approach to such issues involves forming the Environment Committee in cooperation with affiliates around the world to promote environmental protection activities and raise the level of environmental management.

Second Environmental Action Plan

To reduce the environmental impact caused by its business operations, DENSO maintains its own environmental conservation efforts in addition to pollution prevention and other such legal regulations.

Furthermore, following the Global Summit in June 1992, the Company drew up its first DENSO Environmental Action Plan and, in 1996, revised this plan as the Second Environmental Action Plan. Under these plans, we have strengthened our initiatives for environmental protection on a global scale and at the local level.

The goals of the plan, whose term comprises the five years up to fiscal 2000, include the prevention of global warming, natural resource conservation and recycling, and the reduction of environmental impact from automotive emissions and manufacturing plants. Ongoing efforts are being implemented in accordance with concrete initiatives, and we have set numerical targets for preventing global warming and reducing waste to be met by fiscal 2000.

As a result, the majority of the objectives in the Second Environmental Action Plan were met during fiscal 1999.

Outline and Progress of the Second Environmental Action Plan

Environmental issues	Approach	Essential Progress
Prevention of Global Warming	① Improve fuel efficiency • Develop and commercialize fuel-efficient technologies • Further reduce the weight of components	◇ Of the 18 themes for developing and marketing fuel-efficient technologies, 16 have already been marketed and put into practical use. ◇ Total weight of DENSO components in representative vehicles has been reduced 13% compared with 1993 levels.
	② Cut back on the use of new, nonrecycled refrigerants for air conditioners • Recover new refrigerants (HFC-134a) and develop recycling systems	◇ We have developed recovery and recycling equipment for new and old refrigerants and installed them in service stations.
	③ Conserve energy at plants • Reduce CO_2 unit energy consumption* more than 1% per year through energy conservation and maintain use at 1990 levels in fiscal 2000 *per fiscal unit of actual production	◇ In fiscal 1999, CO_2 unit energy consumption was reduced below the 1990 level. (We anticipate fulfilling our fiscal 2000 targets.)
Resource Conservation	④ Respond to market needs and the problem of end-of-life cars and recycling • Establish a prior-assessment system for recyclablity from the design stage • Standardize materials for major resin components • Build a supply system for remanufactured products • Reuse packaging materials and reduce packaging waste	◇ Recyclability assessment and design control systems have been implemented and numerical targets set according to product category. ◇ Materials for electric fans and other devices are in the process of being standardized as polypropylene resins. ◇ Rebuilding of product supply systems is currently under consideration ◇ Use of cardboard is being reduced
	⑤ Reduce internal waste generated by plants • Reduce the volume of internally generated waste 50% in fiscal 2000 compared with the amount generated in 1990	◇ We anticipate a 50% reduction in waste compared with 1990 levels through the reuse of scrap plastic and the longer usage life of process oils. ◇ Landfill waste is currently being reduced toward the zero landfill disposal target for fiscal 2000.
Reduction of Environmental Impact	⑥ Reduce exhaust emissions • Develop technologies that contribute to the further reduction of exhaust emission levels from gasoline and diesel vehicles	◇ Of the five technological development themes for the reduction of gasoline vehicle exhaust emissions, two have already been marketed and put into practical use. ◇ Of the six technological development themes for the reduction of diesel vehicle exhaust emissions, five have already been marketed and put into practical use.
	⑦ Reduce the use of hazardous substances • Promote the further reduction of the use of hazardous substances in products	◇ Alternative technologies are currently being developed for cadmium, mercury, and other substances for immediate elimination
	⑧ Reduce environmental impact created by production facilities • Reduce hazardous substances in plant effluent and promote closed-loop systems	◇ We are reducing environmental impact through such measures as targeting emission sources as alternative materials as well as through closed-loop systems for wastewater.
	⑨ Adhere to laws and promote proactive compliance • Comply with laws and regulations (for example, compliance with regulations regarding substances that cause air pollution as stipulated under the Air Pollution Prevention Law) and strengthen voluntary management standards	◇ Top priority is being placed on measures targeting pollution sources to comply with the more stringent wastewater restrictions introduced in fiscal 1999 (nitrogen and phosphorous), including the use of alternative materials. ◇ We have implemented our own pollution control standards, which are stricter than those required by such laws as the Water Pollution Prevention Law.
Global Approach	⑩ Environmental protection at overseas facilities • In addition to traditional pollution prevention (organization of environmental management systems,deployment of new facilities, and implementation of environmental protection measures around the world), promote energy and resource conservation activities and recycling	◇ We are promoting the firm establishment of the environmental management system ISO 14001 within our organization and developing energy and resource conservation activities and recycling programs.
Public Relations and Education	⑪ Undertake PR and other activities to build understanding in society • Strengthen communications activities aimed at harmony with society • Encourage and support the DENSO Group's environmental protection activities	◇ We have been publishing environmental reports since 1999. ◇ We have launched an Environmental and Safety Council for all domestic Group companies, through which we are developing environmental conservation efforts
	⑫ Promote employee training and awareness-building activities • Establish and promote a corporate culture of harmony with the natural environment	◇ Education is being conducted through the thorough implementation of structured training programs ranging from those for newly hired employees to those for senior managers. ◇ We sponsor environmental exhibitions, through which we introduce environmental conservation activities to our employees
Structure and Organizations	⑬ Conform to ISO environmental management system standards • Promote the acquisition of ISO 14001 certification at all domestic and overseas locations and at six affiliated companies	◇ A total of 37 domestic and overseas locations and 7 affiliated companies have attained ISO 14001 certification.
	⑭ Coordinate Companywide environmental protection activities • Integrate Companywide environmental protection activities (coordinated by the Environment Committee)	◇ We are constantly updating the committee's organization in response to environmental issues.

DENSO EcoVision 2005

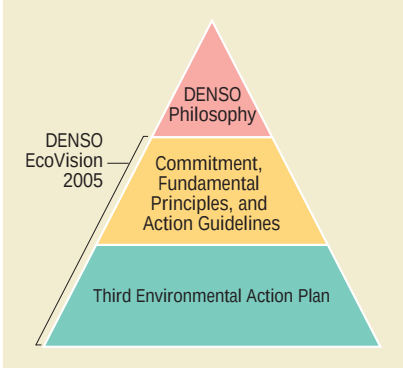
In June 2000, DENSO completely revised the DENSO Environmental Charter and the DENSO Environmental Action Plan and enacted the new DENSO EcoVision 2005, the implementation of which will be accomplished through the Third Environmental Action Plan to be carried out through fiscal 2005.

We are approaching an age in which society's and our customers' concern for the environment will reach new heights, and corporations will be judged upon their environmental responsiveness. It is against this backdrop, and seizing the achievements from the Second Environmental Action Plan, that the Company conducted a third revision of its environmental initiatives. With a new environmentally friendly style of corporate management in the 21st century, DENSO will strive to remain the leading corporation in overall environmental actions, contributing to a recycle-oriented society.

DENSO EcoVision 2005 comprises four sections: the Company's statement of commitment, fundamental principles, action guidelines, and the Third Environmental Action Plan. Our statement of commitment clearly sets out our devotion to research and development while striving for harmony with the environment and continuing environmental conservation. The action guidelines comprise the four pillars of 1) the strengthening of environmental management with respect to consolidated operations, 2) the design and development of environmentally friendly products, 3) the achievement of "clean" factories by further reducing their impact on the environment, and 4) the thorough implementation of external partnerships and information disclosure. These guidelines also illustrate DENSO's commitment to comprehensive environmental compliance, from product design and development through production, use, and ultimately disposal.

In conjunction with our commitment and guidelines, concrete tasks and goals have been set out under our Third Environmental Action Plan. Principal objectives include ISO 14001 certification for all consolidated manufacturing subsidiaries by fiscal 2002; the setting of reduction targets for fuel consumption, exhaust emissions, and other areas of product environmental impact; the promotion of green purchasing; the achievement of zero landfill disposal at all business facilities by fiscal 2003; a 10% reduction in manufacturing plant CO_2 emissions compared with 1990 levels by fiscal 2010; and the expansion of the scope of environmental reports to cover all consolidated subsidiaries by fiscal 2003.

From now on, all consolidated subsidiaries of the DENSO Group will draw up environmental action plans according to their own structure and scale of business operations and based on DENSO EcoVision 2005. Thus, the combined strength of the entire DENSO Group will be leveraged through efforts to promote environmental concern.



DENSO EcoVision 2005

1. Commitment

With the firm understanding that environmentally friendly management will bring forth a new style of corporate action in the 21st century, DENSO declares that it will utilize its research and development capabilities to determine environmentally friendly manufacturing methods that can be implemented at its facilities throughout the world. These improved methods will help to secure DENSO's position as a leader in environmental protection as well as promoting a recycle-oriented society.

DENSO EcoVision 2005 and the accompanying Third Environmental Action Plan will be implemented during the five-year term ending fiscal 2005.

2. Fundamental Principles

1) Leverage the combined strength of the DENSO Group and strive to strengthen environmental management from a global perspective

2) Conduct environmentally friendly design development and production operations from a comprehensive perspective, taking into account all product phases, from manufacture through use and ultimately disposal

3) Proactively embrace external partnerships and information exchange regardless of industry type and strive for efficient communication with all our stakeholders

3. Action Guidelines

3.1 Strengthening Environmental Management with Respect to Consolidated Operations

1) Strengthen DENSO Group environmental initiatives

All DENSO Group companies will share and develop the fundamental principles and action guidelines.

2) Expand and improve the environmental management system

We have striven to attain ISO 14001 certification to further solidify our environmental management system and raise our accessibility to the public. As we direct our attention to strengthening the foundations of our consolidated operations, the DENSO Group will strive for ISO 14001 certification for all Group companies.

3) Enhance action organizations

Having positioned environmental matters as a critical management issue, we will enhance the Environment Committee and effectively manage it as a forum for comprehensive and unified deliberation and decision making.

3.2 Promoting Environmentally Friendly Design and Development

1) Enhance environmentally friendly design

We will create and implement a design review program for the prior assessment of fuel efficiency, exhaust emissions, recycling, environmental impact, and other environmental effects of products at the design and development stages.

2) Promote green purchasing

To reduce the environmental impact of our products, including purchased materials and components, we will promote green purchasing by purchasing materials and components with minimal environmental impact from environmentally friendly corporations through partnerships with our suppliers.

3.3 Achieving "Clean" Manufacturing Plants through Intensified Reductions in Environmental Impact

1) Strive for increased resource and energy conservation in production operations and other efforts to further reduce environmental impact

2) Strive to achieve clean production facilities through the setting of more self-imposed control targets and the creation of systems for continual reduction.

3.4 Promoting External Partnerships and Information Disclosure Regarding Environmental Protection Activities

1) As part of efforts to create new environmental protection activities, we will transcend industry boundaries and strive for further external partnerships with academic institutions and government organizations as well as contribute to society through environmentally friendly products and business operations.

2) We will strive for dynamic disclosure of environmental data to all of our stakeholders and work to enhance communication with local communities.

4. Third Environmental Action Plan (Outline)

1. Strengthening Environmental Management with Respect to Consolidated Operations

- Share policies with consolidated companies
- Promote environmental accounting to link management with the environment

2. Promoting Environmentally Friendly Design and Development

- Establish systems for prior environmental assessment of products
- Promote green purchasing through strengthened partnerships with suppliers
- Promote the development and marketing of technologies for reducing CO_2 emissions
- Promote the development and marketing of technologies for cleaning exhaust emissions
- Improve the level of chemical substance management
- Develop air-conditioning systems that use CO_2 refrigerants

3. Achieving "Clean" Manufacturing Plants through Intensified Reductions in Environmental Impact

- Achieve zero landfill disposal at all business facilities by fiscal 2003
- Reduce manufacturing plant CO_2 emissions by 10% of 1990 levels by fiscal 2010
- Promote the creation of Perfect Energy Plants

4. Promoting External Partnerships and Information Disclosure Regarding Environmental Protection Activities

- Promote external partnerships for the achievement of a recycle-oriented society
- Expand environmental report publishing to cover all consolidated companies by fiscal 2003
- Implement new youth education programs through cooperation with NPOs

Action Organization

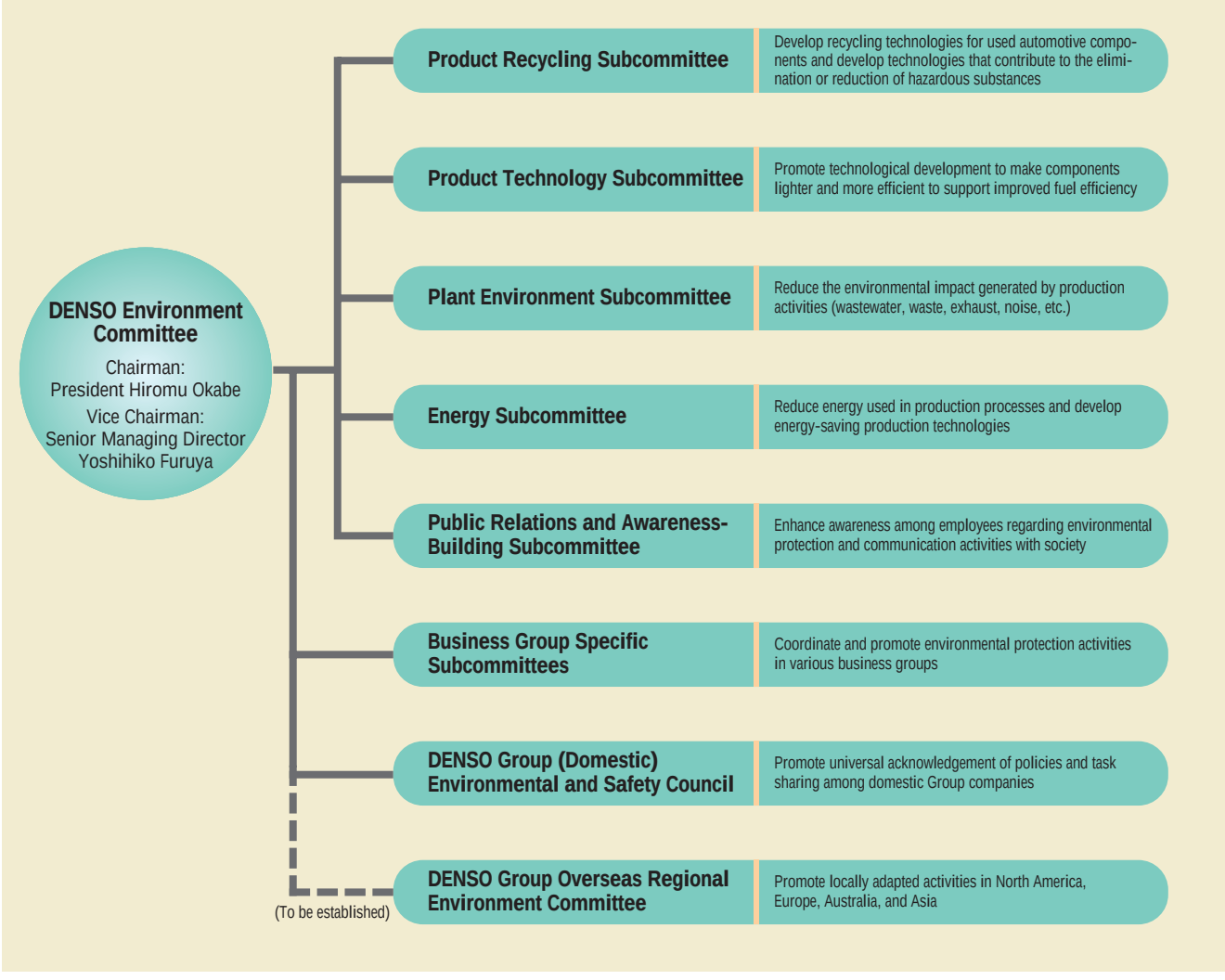
In consideration of the crucial nature of environmental issues both on a global scale and at the local level, in December 1992 DENSO established its Environment Committee to enable a unified response to environmental matters. Headed by the Company president, the Environment Committee discusses and sets Company-wide policies, targets, and initiatives concerning environmental conservation efforts.

Under the Environment Committee, five subcommittees, including the Product Recycling Subcommittee, have been established. Through these subcommittees, comprehensive environmental protection programs are promoted.

Furthermore, in February 2000, in addition to its existing organizations, the Company newly established four sectional committees and study groups under the subcommittees, including the Energy Conservation Process Study Group, in response to changing conditions both in Japan and overseas regarding environmental matters. These new sectional committees represent part of our efforts to strengthen our organization for environmental protection.

In addition, to enhance consolidated environmental management, in April 1999 we launched the DENSO Group (Domestic) Environmental and Safety Council as a chapter organization of the Environment Committee. In the months and years ahead, we intend to further establish a DENSO Group Overseas Regional Environment Committee, comprising the regions of North America, Europe, Australia, and Asia.

Action Organization



Expansion of ISO 14001 Certification Attainment

DENSO has striven to attain ISO 14001 certification as a means to further solidify the Company's environmental management systems and raise accessibility to the public. As a result, 14 of the Company's business locations had achieved certification by fiscal 1998, and, by March 2000, 35 principal Group companies had received certification.

Hereafter, through sharing the fundamental principles and action guidelines of DENSO EcoVision 2005, we will strive to attain certification at all consolidated manufacturing subsidiaries as a means of strengthening our consolidated global environmental management organization.

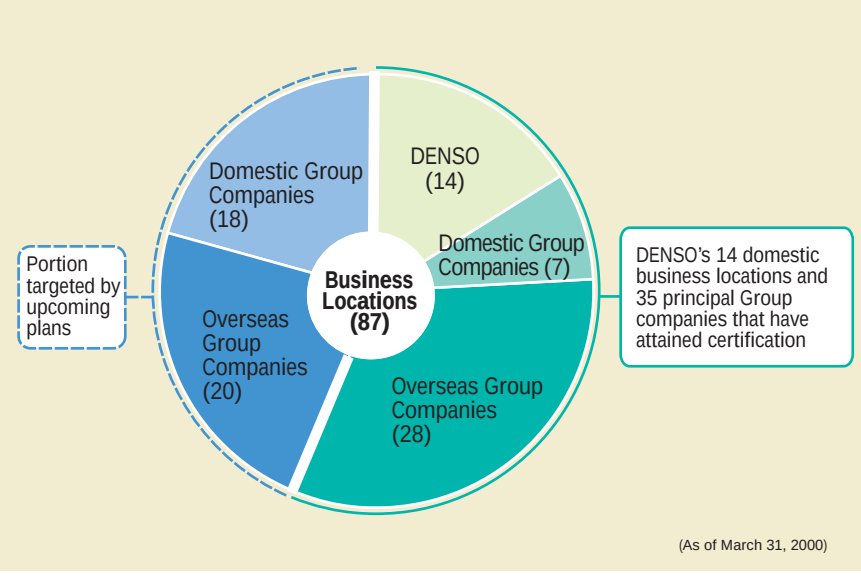
Environmental Auditing

DENSO conducts environmental auditing of its ISO 14001 certified business facilities to confirm that environmental management activities are being effectively conducted according to such specifications as the environment manual and, at the same time, to promote the improvement of nonconforming sections.

DENSO's environmental auditing comprises both external and internal auditing. In the case of external audits, independent inspection bodies confirm that environmental management systems are being properly conducted in accordance with ISO 14001 standards. Internal audits are conducted by an auditing team, composed of environmental auditors and other qualified personnel, using a checklist covering 24 categories and comprising a total of 660 items.

The results of these audits are reported to each location's environmental manager, a duty assumed by the managing officer. Based on these reports, revisions to the management system are made to achieve ongoing improvements in environmental management. (For further information, please refer to page 40.)

ISO 14001 Compliance



Emergency Contingencies

DENSO strives to prevent pollution of the environment through the implementation of in-house standards that are stricter than legal regulations. Environmental conservation tools are also applied to assist in pollution prevention. However, in order to respond swiftly and appropriately in the unlikely case of an accident, we have drafted an emergency action manual. The manual covers the Company's 1,622 critical environmental facilities.* In addition to the standing maintenance of oil fences and other such devices designated by the manual, we also conduct regular drills in preparation for such emergencies.

* Critical environmental facilities are those facilities that require focused management (determined by toxicity and in-house assessment standards).

Oil leak prevention training

Environmental Accounting

By grasping the costs incurred through environmental protection efforts and their effectiveness, environmental accounting is a valuable tool for management. At the same time, environmental accounting data is widely disclosed to shareholders, customers, and other valued associates, thus deepening understanding.

However, the basic concept of environmental accounting has yet to be firmly established. As there is also no internationally accepted standard, DENSO has composed its own Environmental Accounting Working Group, through which it conducts numerous studies and research.

Against this backdrop, the Japanese Environmental Agency's new guidelines for environmental accounting* were released in May 2000. After thorough examination by the Environmental Accounting Working Group, the Company resolved to record environmental costs and effectiveness in accordance with these guidelines.

* *Toward the Establishment of Environmental Accounting Systems* (2000 Report)

● Fiscal 1999 Accounting Results

DENSO first disclosed environmental costs for fiscal 1998 in its *Environmental Report 1999.*

In fiscal 1998, costs were recorded as direct environmental impact-reducing costs, indirect environmental impact-reducing costs, and research and development costs. Total environmental costs amounted to ¥12.0 billion.

For fiscal 1999, in accordance with the Japanese Environmental Agency's new guidelines, we calculated costs including effectiveness. As a result, as indicated in the table below, capital investment amounted to ¥5.2 billion and costs (including operating costs and personnel costs) amounted to ¥10.6 billion, making a total of ¥15.8 billion.

We are not able to make categorical comparisons due to the change in accounting methods in fiscal 1999, but total costs increased by ¥3.8 billion from the fiscal 1998 figure of ¥12.0 billion.

Such vague items as "deemed effect" and "incidental effect" are still being researched by the Company's Environmental Accounting Working Group.

At this time, environmental accounting is limited to DENSO on a non-consolidated basis. However, in the near future, we intend to expand its scope to fully consolidated environmental accounting covering all DENSO Group companies as we strengthen our consolidated environmental management efforts.

Environmental Accounting Results

Item				Investments (¥ billion)	Costs (¥ billion)
Environmental Conservation Costs	1. Primary business costs	Environmental conservation costs incurred in reducing the environmental impact generated by manufacturing	• Facility and maintenance costs for the prevention of such pollution as air, water, and soil contamination. • Energy conservation facilities and other global environmental conservation costs • Recycling, waste disposal, and other resource circulation costs	¥3.1	¥ 2.5
	2. Upstream and downstream costs	Environmental conservation costs incurred through activities other than manufacturing	• Additional costs for new capital investment in products contributing to environmental conservation • Costs incurred through the recycling, recovery, and proper disposal of container packaging	2.1	—
	3. Administrative costs	Environmental conservation costs incurred through environmental management operations	• Employee education and awareness building as well as running costs for EMS certification maintenance • Payments to certifying authorities and personnel costs for internal auditors • Running costs for the auditing and measuring of environmental impact and personnel cost management	—	1.3
	4. Research and development costs	Environmental conservation costs incurred through research and development for environmental impact reduction.	• Costs of researching and developing products that contribute to environmental conservation • Research and development costs for reducing environmental impact	—	6.8
	5. Social activities costs	Environmental conservation costs incurred through efforts to gain social understanding and support	• Nature protection, cleanup efforts, and support for citizens' environmental activities • Donations and support for environmental conservation groups • Costs of environmental data disclosure	—	—
	6. Environmental damage costs	Remediation costs for environmental pollution and insurance fees against environmental damage	• Remediation costs for environmental pollution and insurance fees against environmental damage	—	—
Total				¥5.2	¥10.6

Total Costs: ¥15.8 billion

Item			Physical volume (annual tonnage)	Effect value (¥ billion)
Real Effects	Energy reduction effects (reduction in the amount of electricity and fuels used, using waste heat, in-house electricity generation, and others)		—	¥10
	Waste reduction effects	Sales figures for recycled materials (iron, nonferrous metals, plastics, oil, and others)	64,300	15
		Waste reduction (waste oil, plastic scrap, waste paper, wood shavings, and others)	1,400	3
	Reduction effects on substances with environmental impact (reduction of cyanide and chromeless processing)		—	—*
Deemed effects and incidental effects			Not recorded this fiscal year	
Total			65,700	¥28

* Less than ¥100 million

Environmental Education and Awareness Building

Raising environmental awareness among all managers and employees is crucial for the promotion of environmental protection efforts. Particularly considering the necessity for awareness reform brought on by the recent rapid shift toward a recycle-oriented society, all employees must be unified in their efforts. Hence, DENSO has implemented an environmental education system—tailored to employees according to their level—and conducts numerous awareness-building campaigns. The Company also actively encourages acquiring specialized knowledge and obtaining certified qualifications.

Environmental Education

DENSO implements an environmental education program that enables the reinforcement of the learning process and the consistent updating of knowledge throughout an employee's career. Environmental education was conducted during fiscal 1999 as indicated in the table below. Employees were reminded of the importance of environmental protection and of their individual roles in this system.

Implementation of Environmental Education System

Level	No. of Participants
New Employees	416
Middle-Level Workers	900
Team Leaders	552
Assistant Managers	160
Managers, Departmental Managers, Plant Managers, and Other Managerial-Level Employees	39
Managers (technical staff)	195
Environmental Workers	6,600
All Employees	39,000

● Certification

As a result of DENSO's efforts to encourage employees to obtain certified environmental qualifications, as of March 31, 2000, certifications were attained as indicated in the table below.

Certified Personnel

Course/Qualification	No. of Certified Personnel during Fiscal 1999	Total at Fiscal 1999 Year-End
Completion of Environmental Inspector Training Course	7	10
Internal Environmental Auditor Training Course	17	225
Pollution Prevention Administrator (Air, water)	7	617
(Noise, vibration, and others)	23	1,048
Waste Disposal Facilities Technician	3	66
Specially Managed Industrial Waste Disposal Administrator	2	30

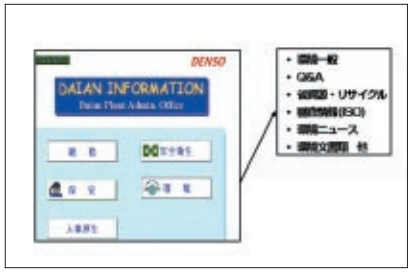
Awareness Building

● DENSO *JIHO*

DENSO's company newsletter is distributed to all employees and contains features on environmental problems in general as well as what the DENSO Group is doing to solve them. A variety of newsletters for DENSO associates worldwide are useful tools for raising environmental awareness among our associates.

● Environment Web Site (Intranet)

DENSO has established an intranet site as a forum for building employee awareness and information sharing. The site provides various data pertaining to the environment. It also features a Q&A section through which employees may obtain answers to questions about waste disposal methods and serves to increase awareness of environmental conservation.



Development and Design

Fundamental Thinking

DENSO has always strived to reduce environmental impact at the manufacturing plant level during processing, assembly, and other production processes. At the same time, on the development side, the Company has supplied products that help meet various fuel efficiency and exhaust emission regulations. However, not limited merely to their manufacture, automotive vehicles put an enormous burden on the environment. Their use generates emissions of CO_2, NO_X, and hydrocarbons, and, upon disposal, many components end up in landfills rather than being recycled. Social demand for solutions to such environmental dilemmas has risen sharply, and customers who emphasize environmental friendliness in their purchasing criteria have increased significantly.

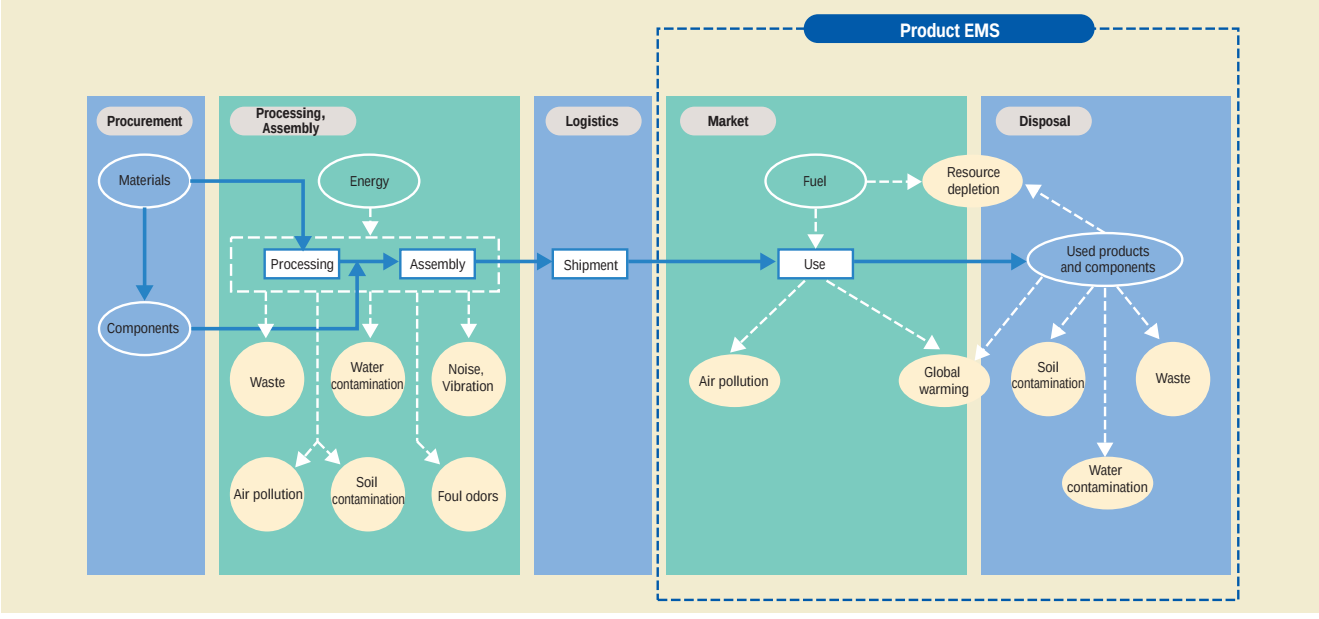
As an automobile component manufacturer, DENSO is striving to further reduce environmental impact by configuring advanced environmental management systems, enabling a comprehensive response to the environmental challenges that occur during automobile use and disposal. At every stage of operation, from parts and materials acquisition through use and ultimately disposal, we will assess and regulate functions to minimize their environmental impact.

In conjunction with these systems, the Company will strive for expanded ISO 14001 certification, including the Headquarters' Development and Design Division in 2000.

Product EMS

DENSO has designated the sections of its comprehensive environmental management system (EMS) relating to product use and disposal "Product EMS." Product EMS is an environmental management system that covers the prior assessment of environmental influences from the development and design stage as well as continual improvement, with the ultimate goal of minimizing environmental impact at the product use and disposal stages. The system comprises the five assessment criteria of fuel efficiency, exhaust emissions, refrigerants, environmentally hazardous substances, and recyclability. The effective and rigorous application of this system, and the resulting supply of products that alleviates environmental impact, is another way in which the Company works to reduce the burden on the environment.

Scope of Product EMS Initiatives



Improving Automotive Fuel Efficiency

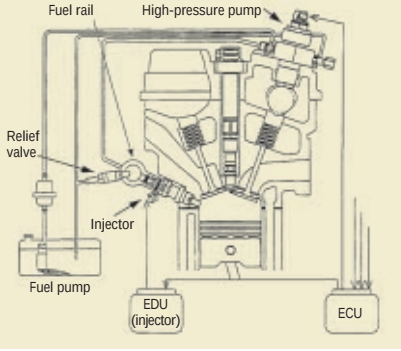
● Gasoline Direct Injection Systems Components

To significantly reduce CO_2 emissions across the entire range of automotive-related components, DENSO works together with automakers to develop new technologies and products that meet both fuel efficiency regulations and the self-imposed standards of the automakers themselves.

DENSO direct injection components are used in the new D-4 engine (internal direct fuel injection) that powers Toyota Motor Corp.'s new 3L Crown, introduced in 1999. With the strato-combustion* provided by the cylinders, the new D-4 engine delivers outstanding fuel efficiency (up to 21% more efficient than conventional engines) and contributes to lower exhaust emissions.

* Strato-combustion: a combustion method that enables the combustion of even extremely thin air-fuel mixtures throughout the cylinder by creating a fuel mixture that ignites easily in proximity to the spark plug

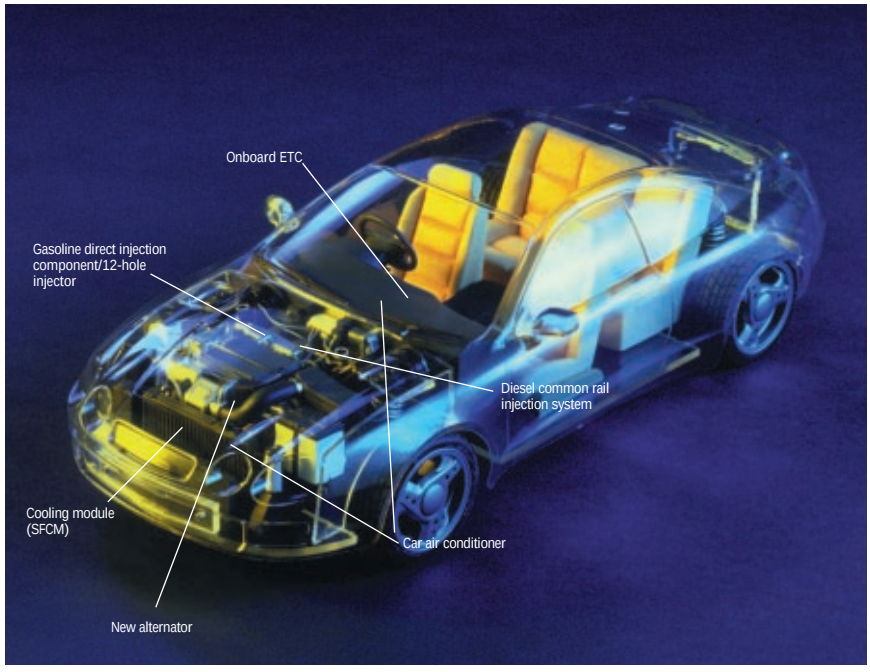
Layout of DENSO's Gasoline Direct Injection Components



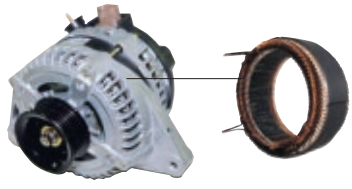
● New Alternator

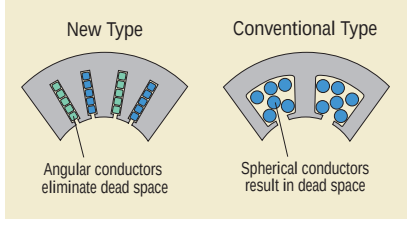
Along with increases in fuel efficiency and comfort, automotive vehicle electricity consumption has also risen. In response to this trend, DENSO has developed and commenced production of the world's first alternator to use angular conductors in the stator. The compact new alternator is 1kg lighter and 10% more efficient in generating electricity (equivalent to a 1% improvement in fuel efficiency) than conventional alternators. It also features a 10dB reduction in revolution and generation noise.

The first practical application of this advanced new alternator was in the new Toyota Estima, which was released in January 2000.



DENSO's New Alternator and Starter



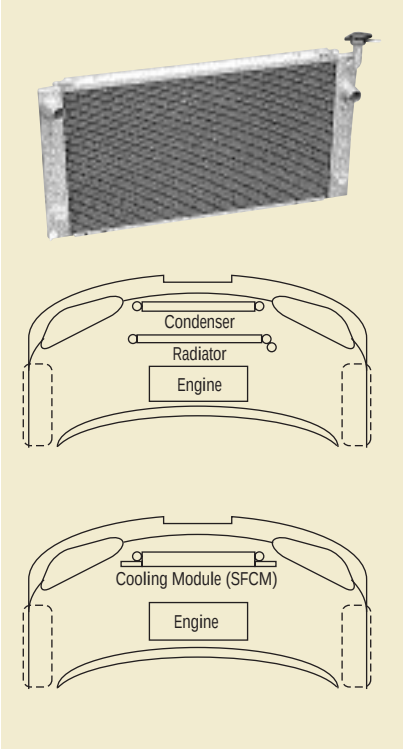


● Cooling Module (SFCM)

DENSO's Single Fin Cooling Module (SFCM) is a high-performance module, the construction of which integrates the two parallel heat exchange units of conventional designs—the engine cooling radiator and the air conditioner condenser—in a single unit. This compact new device is 1kg lighter and boasts 10% more engine and air conditioning cooling efficiency than conventional units. The improved condenser capacity also helps conserve engine power. Furthermore, the SFCM is made entirely of aluminum, giving it superb recyclability.

DENSO's SFCM is used in the Toyota Prius hybrid car, which was introduced in the United States in July 2000 and was launched in the European market this autumn.

Cooling Module (SFCM)



Intelligent Transport Systems Initiatives

DENSO is actively involved in the development of Intelligent Transport Systems (ITS), the new foundation of the motorized society. Of particular note, the Company develops and supplies the onboard devices and toll gate antennae used in electronic toll collection (ETC)

ETC Onboard Unit

systems, which went into testing in Japan starting in April 2000. Over 50% of the monitor vehicles used in the tests incorporated DENSO ETC onboard units for their compact size, superb signal reception, and ruggedness.

As they enable drivers to pay tolls without having to stop their vehicles, ETC systems help improve fuel efficiency by preventing traffic jams and providing smoother-flowing traffic. They also contribute enormously to reductions of CO_2 emissions and noise. Through the practical application of ETC systems and future ITS, in 20 years time, traffic congestion in Japan is anticipated to be reduced to one-fifth of its present scale, and, in 30 years, vehicle fuel consumption and CO_2 levels are expected to be reduced 15% and NO_X from major city centers 30%.

In addition to ITS, DENSO also develops and supplies the Advanced Vehicle Operation System (AVOS).

ETC Tests Opening Ceremonies

Cleaning Automotive Exhaust Emissions

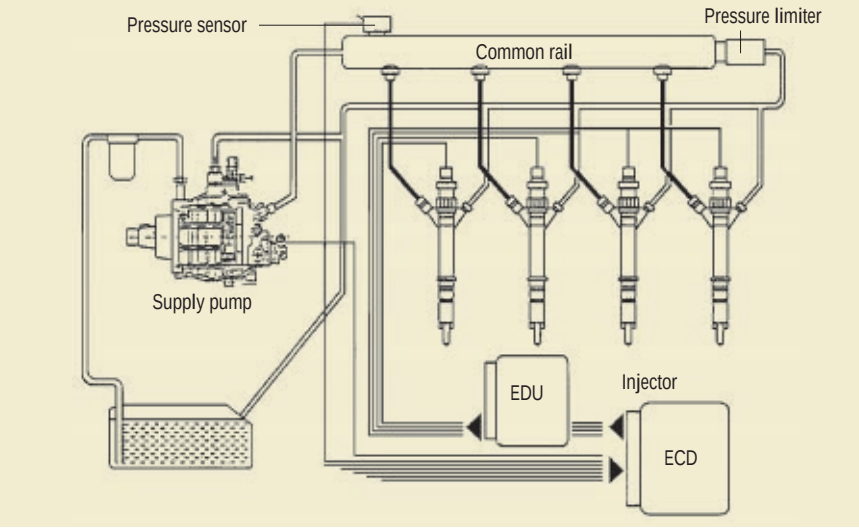
● Diesel Common Rail Fuel Injection Systems

In the fuel injection pump systems of traditional diesel engines the generation of pump pressure depends on engine revolution speed, which compromised the effectiveness of the technology that restricts diesel exhaust during such low-revolution operation as uphill travel. DENSO's common rail fuel injection system ECD-U2 for heavy-duty diesel engines, which went into production in 1995, enabled optimum fuel combustion with electronically regulated high-pressure injection through a common rail (accumulator) that is independent of engine revolution speed. This system contributed enormously to reductions in environmental impact by dramatically reducing the amount of black smoke in diesel exhaust, improving fuel efficiency, and reducing noise. Subsequently, in 1999 the Company jointly developed with Toyota the highly compact and lightweight ECD-U2P (for compact direct injection (DI) diesel engines) for passenger cars, based on the ECD-U2 technology. This system was installed in Toyota's Avensis, which hit the European market in September 1999 and in the Toyota Hilux Surf, which was introduced to the Japanese market in July 2000.

● Hexagonal Cell Monolith Carrier

When the NO_X, hydrocarbon, and CO_2 content of engine exhaust passes through the monolith carrier—composed of thousands of cells divided by ceramic walls—the catalysts on the interior of the cells chemically react with these harmful substances and cleanse the exhaust. In 1998, DENSO developed the world's first cell monolith carrier to use hexagonal cells instead of square cells. This carrier features a ceramic wall thickness of

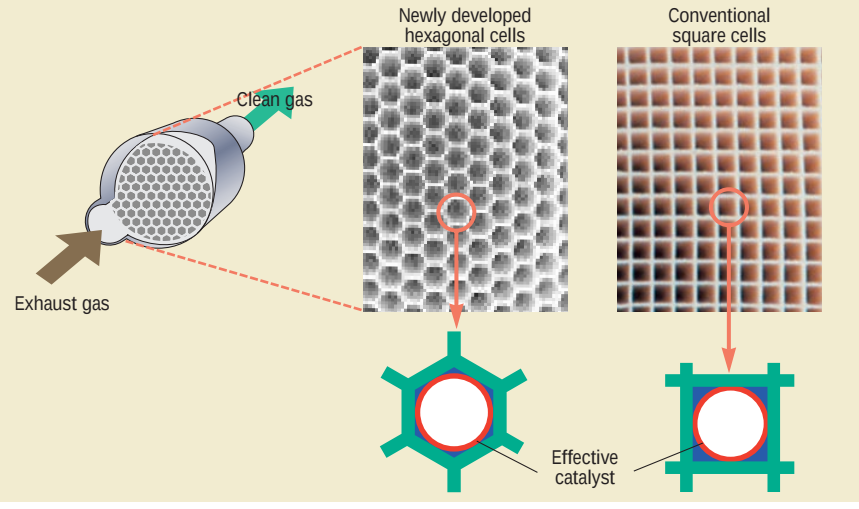
Diesel Common Rail Fuel Injection System



0.15mm. Using hexagonal pores enabled a more uniform thickness of the catalyst and increased the effective volume of catalysts, thus improving exhaust-cleaning performance approximately 20%. In 1999, DENSO led the world once again by developing an ultrathin hexagonal cell monolith with a cell wall thickness of 0.1mm. This monolith was used in Toyota's Crown D-4 (direct injection) engine. The new monolith features an approximate 15% reduction in air resistance when the exhaust travels through the carrier compared with the previous 0.15mm-thick version. Thus, in addition to improved fuel efficiency, by achieving an approximate 25% reduction in weight, catalyst heat is improved and cleansing efficiency is increased approximately 5%.

In addition to these achievements, DENSO is currently engaged in other initiatives to improve exhaust-cleansing efficiency, such as the development of a square cell monolith carrier with a cell wall thickness of 0.05mm.

Hexagonal Cell Monolithic Carrier



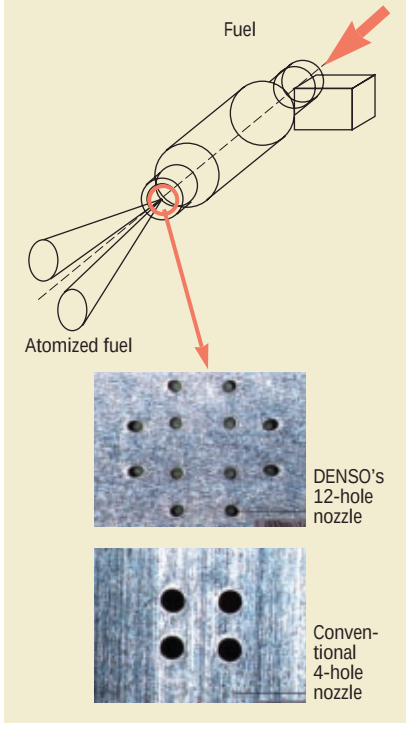
● 12-Hole Injector

EFI* injectors respond to signals from an ECU** and, after metering the appropriate amount of gasoline, inject fuel from nozzle holes in the tip into the intake manifold, thereby creating the fuel mixture. DENSO has developed a 12-hole injector that uses 12 nozzle holes as opposed to the four holes of conventional injectors. The increased number of holes creates a finer fuel spray, which reduces the fuel's adhesion to the manifold. In addition to reducing hydrocarbon emissions, it also enhances air/fuel ratio control during acceleration and deceleration as well as contributing to greater fuel efficiency by homogenizing the fuel mixture.

The environmentally friendly and economical 12-hole injector has been incorporated into the North American model Toyota Camry, released in 1999.

* EFI (Electronic Fuel Injection)
** ECU (Electronic Control Unit)

12-Hole Injector



Reducing the Impact of Automotive Air Conditioners on Global Warming

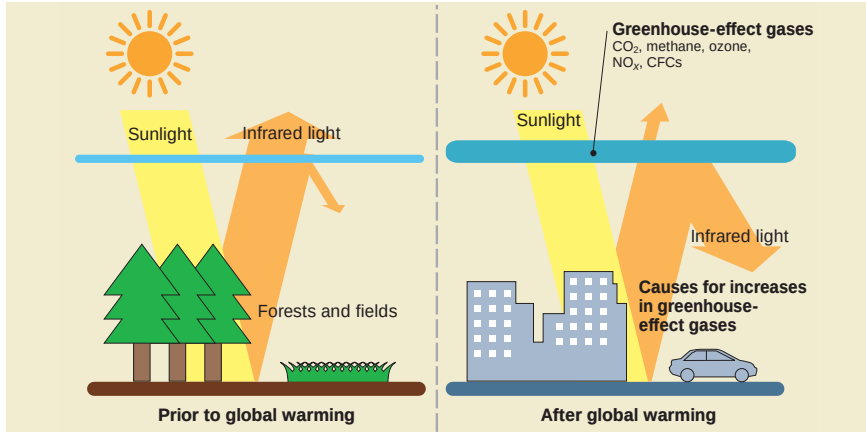
Vehicle air conditioner related causes of global warming stem from the high level of greenhouse gases currently used as refrigerants and from the increase in engine fuel consumption required to operate air conditioner units. DENSO has come up with an environmental indicator called the TEWI (Total Equivalent Warming Impact), which is an aggregate value of CO_2 emission volumes as a result of these factors. The Company uses TEWI values to environmentally assess vehicle air conditioners and works to reduce their environmental impact.

Regarding refrigerants, we continue to use the CFC substitute HFC-134a. We are also making enormous contributions to the reduction of global warming by decreasing refrigerants volumes through improved mechanisms and reducing refrigerant leakage through the use of stronger hose joints.

As for engine fuel consumption, the Company is striving to enhance the efficiency of air conditioner systems and their various components as well as make them more lightweight. Nearly completed are the development of such products as a high-efficiency sub-cool condenser, a high-efficiency scroll compressor, and a high-efficiency externally controlled variable capacity compressor. As a result of these efforts, we have nearly fulfilled our fiscal 2000 targets of 25% conservation of motor power compared with fiscal 1995 figures and 15% conservation of refrigerant. In the months and years ahead, DENSO will strive to further enhance compressor and condenser performance by continuing to develop the systems most capable of comprehensive vehicle efficiency and work to develop new technologies toward its fiscal 2005 goal of 15% motor power conservation.

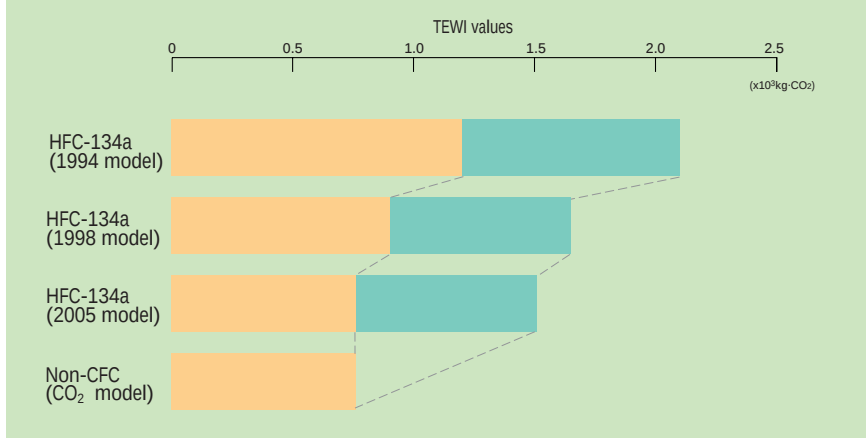
Additionally, we have commenced development of a state-of-the-art air conditioner system using such natural refrigerants as CO_2 and hydrocarbons and are currently testing CO_2 systems in test vehicles.

The Global Warming Process



TEWI Value = Increase in CO_2 emissions from increased engine load due to running of air conditioners + Global warming index of refrigerant × Amount of leaked refrigerant

TEWI Values



Reducing the Use of Hazardous Substances

Fundamental Activity Policy

DENSO refers to chemical substances that impact human health and the ecosystem as hazardous substances. Examples of such substances include lead, cadmium, and asbestos.

Hazardous substances pose a threat to human health and the environment when they are used in manufactured products. However, when such products are disposed of, the danger exists that hazardous substances may be leaked into the ecosystem. With this in mind, DENSO is striving to eliminate hazardous substances from its products.

Furthermore, although several chemical substances fall under the category of hazardous substances, DENSO strives for comprehensive reduction of such substances in terms of both design and materials. This includes not only those substances designated under both domestic and international laws but also those targeted by the self-imposed initiatives of its customers and industries.

Design-Based Initiatives

In 1999, DENSO ratified the hazardous substance use restriction standards of its internal product design standards. These standards establish restrictions on the use of 86 different hazardous substances as materials or product components within the Company's internal product design standards, with the ultimate goal of minimizing the use of hazardous substances starting from the design stage. These 86 substances comprise 26 top-priority substances, including lead, cadmium, hexavalent chromium, and mercury, the use of which is targeted for reduction or elimination, and 60 second-priority substances, whose halides have been clearly identified. From now on, whenever we design a new product, we will check all the substances included against these standards and promote designs that eliminate the use of hazardous substances.

Materials-Based Initiatives

In 1999, DENSO commenced the development of alternative technologies for the aforementioned top-priority substances that are scheduled for reduction or elimination.

Regardless of our efforts to eliminate the use of hazardous substances in product design, some of our products' functions depend on such substances. In response to this dilemma, DENSO has commenced the development of alternative technologies for the future replacement of materials and components that contain hazardous substances.

Please refer to the table on page 18 for information about how these efforts are progressing.

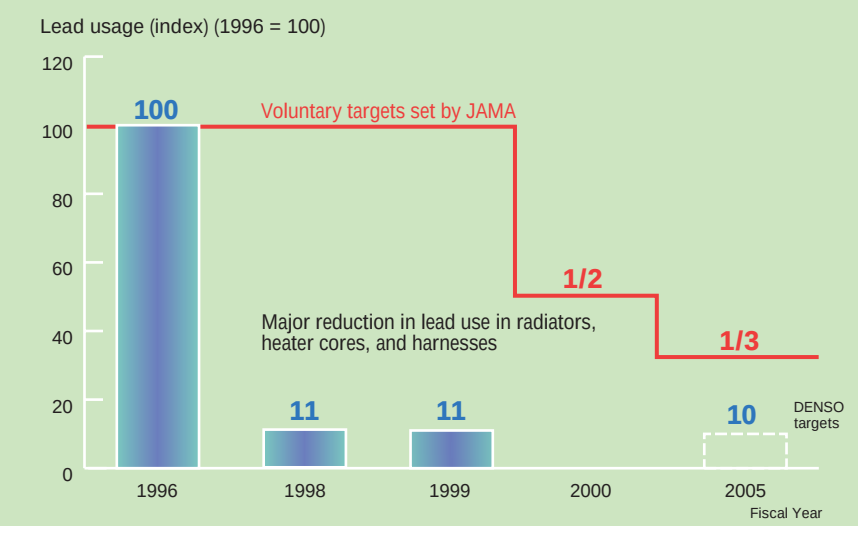
Future Endeavors

In preparation for the future discovery of additional hazardous substances, DENSO is keeping a watchful eye on the state of chemical substance use and promoting new solutions in anticipation of future legal restrictions. We will also continue to pursue the development of technologies to replace hazardous substances, particularly lead, hexavalent chromium, cadmium, and mercury.

Fundamental Activity Policy

- DENSO will adhere strictly to legal restrictions and customer requirements regarding hazardous substances as well as its own self-imposed standards.
- DENSO will strive to develop alternative technologies for additional hazardous substances that it has independently identified.

The Automotive Industry's Voluntary Targets and DENSO's Reduction in Lead Usage



Progress of Alternative Technology Developments for Hazardous Substances

	Material	Product	Fiscal 1996	Fiscal 1998	Fiscal 1999
Lead	Solder	Copper radiators	In use	Completely eliminated	Completely eliminated
		Copper heater cores	In use	Completely eliminated	Completely eliminated
		Electrical components	In use	Technology now being developed	Now being converted
		Circuit boards	In use	Technology now being developed	Technology now being developed
	Electrodeposition paint	Coated components	In use	Technology now being developed	Technology now being developed
	Ferrous and nonferrous metals	Free-cutting steel	In use	In use	Technology now being developed
	Plating steel	Solder plate steel	In use	In use	Technology now being developed
	Sliding materials	Axle bearings	In use	In use	Technology now being developed
	PVC	Wire harness	In use	Completely eliminated	Completely eliminated
	Rubber	Rubber components	In use	In use	Technology now being developed
	Glass	Plugs	In use	In use	Technology now being developed
	Ceramics	Piezoelectric elements	In use	In use	Technology now being developed
Cadmium	Contact materials	Contact components	In use	Now being converted	Now being converted
	Glass paste	Ceramic boards	In use	Now being converted	Now being converted
Hexavalent Chromium	Surface finishing	Plated components	In use	In use	Technology now being developed
Mercury	—	Fluorescent tubes	In use	In use	Technology now being developed

Non-Automotive Initiatives

Leveraging the technology and expertise accumulated in the automotive field, DENSO is actively engaged in the development and promotion of a wide range of environmentally friendly non-automotive products.

● CO_2 Coolant Hot Water Heater for Household Use

DENSO has led the world in jointly developing a CO_2 refrigerant hot water heater with Tokyo Electric Power Co., Inc., and the Central Research Institute of Electric Power Industry. CO_2 is a natural refrigerant that is neither toxic nor flammable, and, in addition to reducing the destruction of the ozone layer, the use of CO_2 refrigerant is highly effective in suppressing greenhouse gas emissions because CO_2 given off during the manufacture of industrial products is reused. In addition, the hot water heater has an outstanding Coefficient of Performance (COP*) of more than 3.0 and thus consumes approximately one-third the electricity of conventional electric water heaters. Furthermore, the superb heating capacity of CO_2 refrigerant enables the supply of up-to-90°C water even in outdoor temperatures of –20°C, and its excellent heat conductivity allows for a more compact head pump unit and the saving of space.

DENSO is currently conducting monitored proving trials of this exciting new product.

CO_2 refrigerant hot water heater for household use

*COP (Coefficient of Performance): an expression of cooling or heating capacity in relation to electricity consumption, COP is the ratio of freezing or heating volume and the thermal equivalent of the energy appropriated by the freezer or heat pump to achieve that volume.

● Compact Cooler

Leveraging the technology accumulated in automotive heat exchangers, DENSO has developed and marketed a compact cooler for computer chips and other such devices. This cooler is approximately one-quarter the size and weight of existing computer cooling devices, with equivalent cooling capacity. Also, as it uses the CFC substitute HFC-134a as a refrigerant, it poses no threat to the ozone layer.

In the months and years ahead, the Company will develop even-more-compact and lightweight cooler units to meet the spiraling heat-reduction requirements of the constantly advancing PC and server markets.

Compact Cooler

● Transceiver Station Heat Exchanger

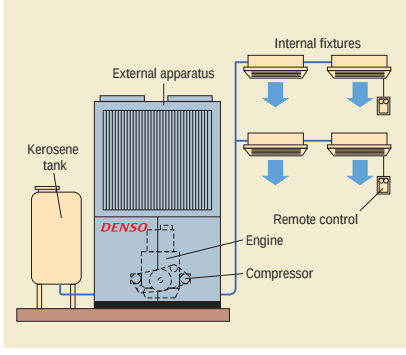
Due to the rapid increase in heat volumes generated by the communications facilities of cellular telephone transceiver stations, system cooling has become an urgent matter. As a solution to this problem, DENSO has developed and marketed cooling support devices for transceiver stations. These devices use the high-temperature discharge from communications equipment to naturally circulate refrigerant between indoor and outdoor equipment, resulting in significant energy conservation, particularly when used in conjunction with station air conditioners. The device also contributes to overall noise reduction as it operates without a compressor and the only audible running noise is its fan.

Transceiver Station Heat Exchanger

● Kerosene Heat Pump Air Conditioner

Amid the progress of efficient energy use and “best mix” combinations (equilibrium between petroleum, natural gas, and electricity), DENSO has succeeded the conventional electric and gas heat pump air conditioners with the development of a new professional-use kerosene heat pump air conditioner (KHP). KHPs are compressor-driven air conditioners powered by kerosene-fueled diesel engines. Particularly during heating, KHPs recover heat discharged from engine refrigerant, thus enabling efficient energy use. It also contributes to environmental improvement with extremely low electricity consumption—approximately one-tenth that of electric heat pumps—and a comparatively low total volume of CO_2 and methane greenhouse gas emissions.

Kerosene Heat Pump Air Conditioner



● Central Air Conditioning

Amid the demand for comfortable living space, the use of air conditioners has expanded beyond the living room. Greater demand for air conditioning is anticipated in the near future with the spread of residential air conditioning and the need to minimize temperature differences between bathrooms and lavatories in consideration of Japan’s increasingly elderly population.

At the same time, the current upwardly spiraling energy demand from residential homes cannot be ignored. Through government promotion of energy conservation laws, energy-saving buildings and homes applying next-generation energy conservation standards with superior air proofing and thermal insulation are being strongly advocated.

DENSO is working with its affiliate DENSO Ace Corp. (the new name adopted in March 1999 by the company previously known as General Air Con Technica Co., Ltd.) to develop energy-conserving central air conditioning systems for these airtight, thermally insulated homes*.

*Airtight, thermally insulated homes are said to be unaffected by external temperatures and capable of air conditioning using one-half to one-third the energy of conventional homes.

Production Activities

Fundamental Thinking

DENSO's basic policy is to protect the environment from a global perspective and achieve clean manufacturing operations in each business group. Not content with mere legal restrictions, DENSO implements several voluntary initiatives to reduce environmental impact throughout all its production activities.

Once again in fiscal 1999, DENSO carried out its initiatives under concrete targets for energy conservation, waste reduction, decreasing nitrogen and phosphorous from wastewater, and the elimination of ozone-depleting substances. Of particular note, we have perfected alternatives to HCFC and completely eliminated the use of ozone-depleting substances from our production processes and products.

In the months and years ahead, the Company will intensify its environmental impact reduction efforts and strive for zero landfill disposal, comprehensive management and voluntary reductions of chemical substances, further energy conservation, and the creation of perfect energy factories.

Reducing Companywide Waste

Various kinds of waste are generated through DENSO's production processes, including plastic scrap, waste oil, wastepaper, and wood shavings. To reduce such waste, the Company has implemented the 3R Action Plan to reduce, reuse, and recycle. Demand is currently growing for the achievement of a recycle-oriented society that is capable of continuous development by circulating resources and producing no waste. In response, DENSO is striving to strengthen its waste reduction initiatives while endeavoring for the earliest possible achievement of zero landfill disposal as well as for the most effective use of resources through the expansion of waste classification at the materials level and their thorough reuse.

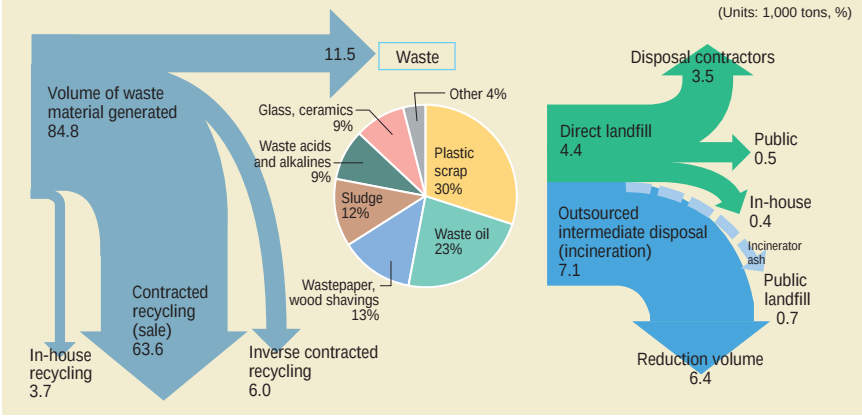
The 3R Action Plan

Reduce — Improve production processes and materials used (reduce solid waste volumes, extend the usable life of processing oils, etc.)

Reuse — Reuse materials and components in their corresponding applications (reuse scrap materials within the manufacturing process, use returnable containers, etc.)

Recycle — Reprocess waste products for use in different applications and for different purposes (repelletize scrap resins, use sludge in cement, convert waste oil into fuel, etc.)

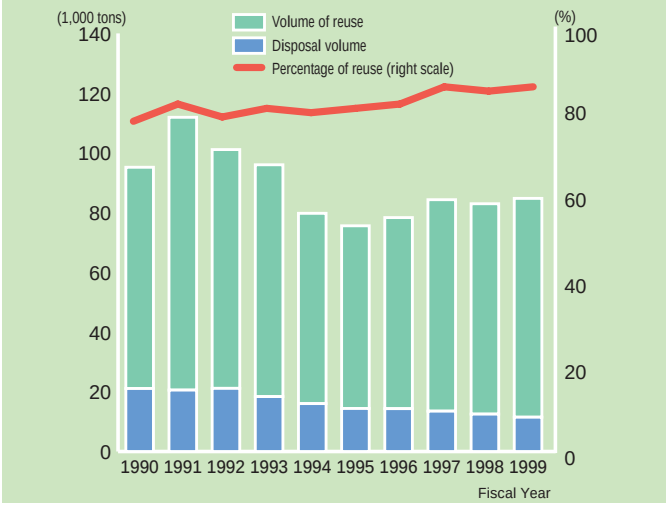
Progress in Waste Product Processing (Fiscal 1999)



Goals and Results

As a result of DENSO's efforts toward the goal established under its Second Environmental Action Plan of reducing waste at production facilities to less than 50% of the fiscal 1990 level by fiscal 2000, fiscal 1999 waste generation volume was reduced 11,500 tons, or 45.5%, compared with fiscal 1990. Through such initiatives as the reuse of plastic scrap and the extension of the

Amount of Waste Generated and Percentage of Reuse



useable life of process oils, we expect to fulfill our fiscal 2000 goals.

Zero Landfill Disposal Initiatives

As a result of DENSO's efforts to reduce water-soluble waste oil through condensation processing and recycling plastic scrap, the initial target of a reduction of 11,500 tons was met successfully.

To further advance our waste-reduction initiatives, we selected our Anjo Plant as a zero landfill disposal model facility and launched a project team in March 2000. Model facilities target the elimination of landfill waste by fiscal 2001.

To achieve this goal, we are intensifying our efforts to convert to the use of recyclable materials and adopt production methods that generate no waste. In addition, we have introduced new recycling methods, including the use of sludge as an ingredient in cement, using plastic scrap as a blast furnace material, and the use of waste oil as fuel. At the same time, we are looking into the recyclability of toxic industrial waste and such general waste as office supplies and everyday trash.

Furthermore, to promote resource conservation and proper waste disposal, the Company is also working to develop a data system capable of comprehensive management of not only waste but also material usage and recycling volumes.

Leveraging our model facility experience, we will gradually expand these activities to other facilities from fiscal 2001 and strive to achieve zero landfill disposal at all our domestic facilities by fiscal 2003.

● Waste Reduction Success Story—In-House Recycling of Aluminum File Dust

At DENSO's Anjo Plant, after the casting of such diecast components as starter housings, screw holes and other perforations are then bored. The aluminum file dust (cutting scraps) generated during this process by the Anjo Plant's starter and alternator sections amounts to 60 tons per month.

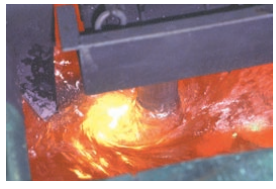
Through both external and internal partnerships, the plant's Engine Electrical Systems Mfg. Dept. 1 has achieved in-line recycling of this aluminum file dust. In the past, aluminum file dust was sold to an aluminum ground metal supplier, now it is melted down in an in-house smelter and reused as a raw material.

Mr. Yoshikawa, of the Engine Electrical Systems Mfg. Dept. 1, comments on the stimulus for these recycling initiatives and the factors leading to their success. "There is only one type of aluminum file dust generated at the Anjo Plant. By recycling it in-house, we can avoid the hassle and cost of transporting it elsewhere for disposal. It also contributes to reductions in energy consumption and materials costs. There are two major keys to the success of our in-house recycling program. First, we developed a specialized smelter to melt down the file dust and produce ingots to prevent any compromise in product quality. Second, we made sure that no foreign particles were mixed in with the file dust. The smelter was jointly developed with a forge manufacturer, although we customized it considerably. For example, we linked up with the Maintenance Division and improved the shaft bearing section to enhance the durability of parts, such as the smelting impeller. Staff from other divisions were very helpful in cooperating on methods of preventing foreign particles from being mixed in with the file dust."

Recycling of aluminum file dust at the Anjo Plant does not stop there. Sludge, which is difficult to melt down, is generated during the processing of file dust. This sludge is also recycled. Up to that time, sludge had been disposed of at landfills by outside contractors, so the plant strove to gather data and improve sludge containers and were successful in marketing it to steelmakers as auxiliary material. The Anjo Plant is now a model zero landfill disposal facility. From now on, the plant will work together to find other ways to improve its operations and strive to achieve the zero landfill disposal goal set for fiscal 2001.

Mr. Yoshikawa, of the Engine Electrical Systems Mfg. Dept. 1, played an important role in the in-house recycling of aluminum file dust.

In-house aluminum file dust recycling
Above: Recovered file dust is placed in this hopper.
Right: File dust is melted down in this smelter.



● Waste Reduction Success Story—
Packing Backing Paper Recycling

The Air-Conditioning Mfg. Dept. 2 of DENSO's Nishio Plant discharges 32 tons annually of backing paper from the urethane foam used in product packing. Through innovative thinking and cooperation from external sources, we are now able to recycle this wastepaper and have also succeeded in reducing the volume of shock insulation purchased.

In the past, backing paper was thrown out because the polyethylene in the laminate release paper could not be separated from the paper. Seeking an effective solution, the department obtained the cooperation of the manufacturers of the paper, under which it developed a new technology that enabled recycling by replacing the polyethylene portion of the release paper with clay. The clay used is pure natural clay and posses no problems for recycling.

The plant also explored other recycling applications and developed the use of narrow backing paper, which is easy to roll up, as shock insulation. With the cooperation of the social welfare organization Kurumi-Kai, 5,500 pieces of backing paper are currently reused per month as shock insulation packaging.

The finished product delivered from Kurumi-Kai is used as shock insulation in domestically shipped supplies, thus reducing the amount of new shock insulation material purchased. Through these efforts, the plant has succeeded in reducing waste volume by 1.1 tons per month, and it is now diligently working toward the fiscal 2003 zero landfill disposal goal.

Packing backing paper used as shock insulation

Energy Conservation

DENSO is aggressively engaged in energy conservation as one of the pillars of its environmental conservation programs. At the heart of its efforts is the Energy Subcommittee, which ushered through the fiscal 1996 to 2000 Second Environmental Action Plan. Under the Third Environmental Action Plan, which was announced in June 2000, CO_2 reduction targets, which were previously set in unit rates, were changed to absolute values. In the months and years ahead, we will intensify our efforts toward the fulfillment of new goals.

Goals and Results

In fiscal 1999, using the value of 100 to represent 1990 levels, the Company achieved a significant reduction in CO_2 emission units from the previous term's figure of 96.4, to 93.0.

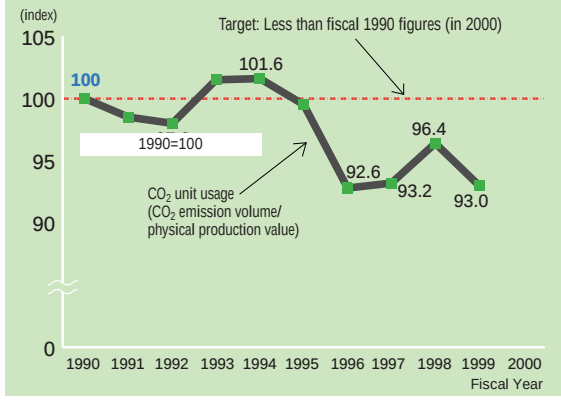
Fulfillment of Emission Volume Reduction Targets and New Technology Development

The Second Environmental Action Plan stipulated the CO_2 reduction target of "stabilizing CO_2 units (CO_2 emission volume/physical production value) to 1990 levels by 2000." DENSO has been proactively working to fulfill this goal. The favorable results for fiscal 1999 were due to the unexpected high rate of production and various special measures taken by the Company, including air-energy conservation and energy-conservation controllers.

DENSO's energy conservation efforts comprise such technological improvements as air-energy conservation (improvement of air-blow and leakage prevention) and forge energy conservation (recovery of waste heat and gas heating) as well as such administrative improvements as energy saving during summer peak consumption periods and when production lines are idle. Each manufacturing division devises and executes its own improvement measures to meet the goals designated by the Energy Subcommittee.

The Company is also engaged in other technology development, such as state-of-the-art "seed sowing" endeavors. These comprise various technology development and research themes geared toward the future incorporation

Trends in CO_2 Unit Usage



of new facilities, including the shortening of the time required for aluminum diecast heat processing, increasing the speed of helium leak tests, and investigations into the adoption of cogeneration systems. Through these efforts, we will be able to achieve effective energy conservation upon the incorporation of new facilities.

Fiscal 2000 is the final year of the Second Environmental Action Plan, and DENSO is implementing several special initiatives to meet its unit CO_2 reduction target. These include the continual improvement of technology and administration as well as the air-energy conservation measures introduced in fiscal 1998, scrap-and-build production cycles, and the Company's eighth cogeneration facility (Takatana Plant).

Takatana Plant's 6,500kW cogeneration system, DENSO's eighth facility

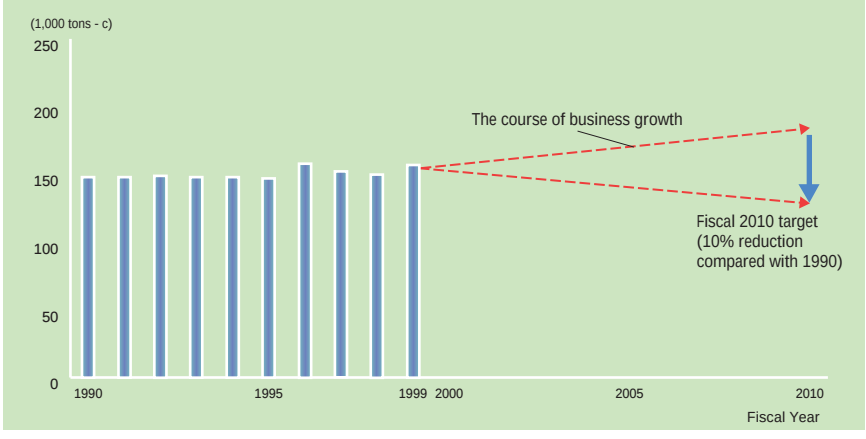
Initiatives toward the Third Environmental Action Plan

Although there are currently no restrictions on CO_2 emission volumes, in response to global movements stemming from the decisions made at the Third Conference of Parties to the United Nations Framework Convention on Climate Change (COP) held in Kyoto in 1997, movements are growing in Japan's automotive and automobile components industry to establish absolute value targets. Against this backdrop, under its Third Environmental Action Plan, DENSO has set the goal of achieving a 10% reduction from 1990 CO_2 emission figures by fiscal 2010. This constitutes the extremely strict task of reducing absolute volumes amid an outlook for future business growth.

To fulfill this challenging goal, DENSO is promoting the following initiatives to curtail emission volumes.

In consideration of the promotion of CO_2 emission volume reduction the Company's business group organization, the Energy Subcommittee's suborganizations have been reshuffled into a group-specific energy team, which engages in CO_2 reduction on the production process and energy supply side, and the facilities energy team. We have also deemed technical development and the adoption of new technologies necessary to fulfill our goals. As such, in fiscal 1999 we launched the Energy Conservation Process Research Council, which is currently developing and promoting new technology themes for CO_2 reduction.

Trend in Emissions from Production Plants and Fiscal 2010 Target



Future Initiatives for Achieving Perfect Energy Factories

In addition to the aforementioned efforts, the creation of the Perfect Energy Factory (PEF) as an advanced energy conservation model factory plays a prominent role in the fulfillment of the Company's goals. PEF promotion strives for the achievement of a "minimum energy loss factory" and encompasses several attempts to reduce factorywide CO_2 emissions through such new energy systems incorporating CO_2 reduction technology as energy conservation lines, cogeneration, solar electricity generation, and regenerative systems.

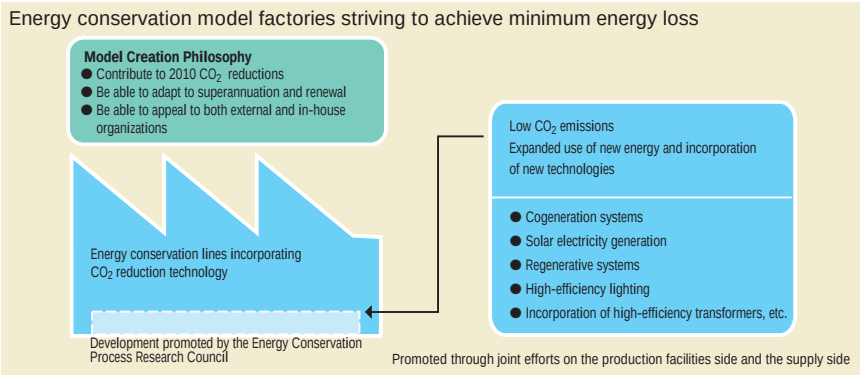
The Company is currently considering medium-to-long-term CO_2 reduction measures for each business group, as well as ushering through the selection and conception of PEF lines.

● Energy Conservation Success Story—Air Conservation Dream Workshop

The Engine Control Components Mfg. Dept. 2 of the Nishio Plant established a new Energy Conservation Group in 1994 and commenced efforts to reduce electricity consumption. Leveraging its experience in electricity reduction, in 1996 DENSO engaged in its first initiatives to reduce compressed air usage. In fiscal 1999, unit energy consumption (energy costs per thousand yen of production value) was reduced approximately 20% over a six-year period. This success story was publicized both externally and within the Company and made a tremendous contribution to CO_2 reduction efforts.

Compressed air is used throughout the production process, from the cylinders that drive production equipment to

Perfect Energy Factory



strainers after washing, and costs the Company approximately ¥3.5 billion annually.

Energy Conservation Group Leader Mr. Yamazaki reflects on the project: “As our department uses a particularly large amount of air, we resolved to endeavor to reduce consumption. At that time, air leaks were ignored as long as they posed no immediate threat to production. We started by coming to work on the weekends and checking each and every one of the 4,000 pieces of equipment for air leaks by hand.”

Air devices that were previously thrown out are currently fitted for reuse at the air device repair center that has come to be known as the Air Conservation Dream Workshop.

“It’s extremely motivating to actually observe the progress we make in air conservation. Everyone is working very hard. Right now, we are making preparations to be able to supply recycled parts to other divisions. We are steadily progressing toward our goal of becoming an advanced energy conservation and zero-emission plant in the near future,” remarks Mr. Yamazaki on the “dream.”

Energy Conservation Group Leader Mr. Yamazaki at work in the Air Conservation Dream Workshop.

Reducing the Use of Hazardous Substances

Our Philosophy

We are prioritizing an absolute reduction in the use of hazardous substances and their replacement with materials that place less of a burden on the environment. By reducing the use of chemical substances at our facilities, we aim to lighten the burden that making DENSO products places on the atmosphere, water quality, and soil. Furthermore, we are pushing ahead with the deployment of manufacturing systems with low environmental impact and the importation of chemical removal and treatment technologies.

Targets and Results

As part of our plans to reduce pollutants in factory wastewater we have installed liquid-concentration measuring devices, replaced nitric acid with other cleaning agents, and set targets for the reduction of nitrogen and phosphorous in factory wastewater.

Water Quality Control

There are two principal causes of water pollution associated with manufacturing facilities: discharges from dining halls and toilets and discharges that occur in the course of such production processes as heat treatment, plating, and machine processing. We treat wastewater according to which one of the two categories it belongs, and we release it into public waterways only when we have confirmed that it meets our voluntary standards, which are more stringent than those decreed in law, or the standards we have established in conjunction with the cooperation of local communities.

DENSO’s voluntary standards regarding water quality are severe. For harmful substances—as designated by the Water Pollution Control Law—we use whichever of the three following standards is the

most stringent. These are a numerical value one-fifth of that stipulated by law or local ordinance, the numerical value either contained in an agreement signed with representatives of the locality, or the value set out in the policy of the local authority. For other substances, apart from using a numerical value one-half of that stipulated by law or local ordinance, we use identical criteria.

● Discharge Management System

At all DENSO production facilities, we have installed a discharge management system unique to the Company. We collect wastewater that has been cleaned at a wastewater treatment plant in a series of discharge storage tanks, and only after the water has been thoroughly checked do we release it. By sequentially changing the functions of the various tanks, it is possible to treat wastewater continuously, and, should water quality be unsatisfactory, the system is designed to allow wastewater to be sent back to the wastewater treatment plant for additional processing.

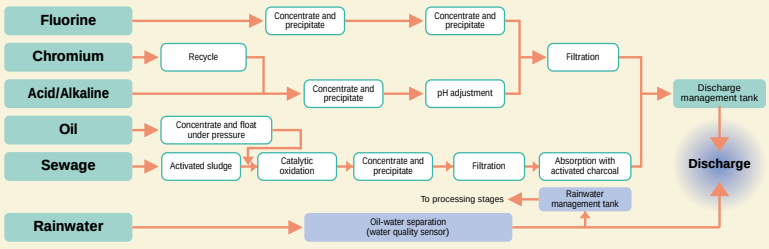
● Rainwater Management System

We have installed rainwater management systems at DENSO premises that have rainwater discharge outlets. Rain that falls within the boundaries of the premises is collected, and any oil is removed in a water-oil separating tank, which is under constant surveillance by water quality sensors. Even if only slight impurities are detected in the water, it is automatically sent to the wastewater treatment plant, where it is cleaned thoroughly prior to release.

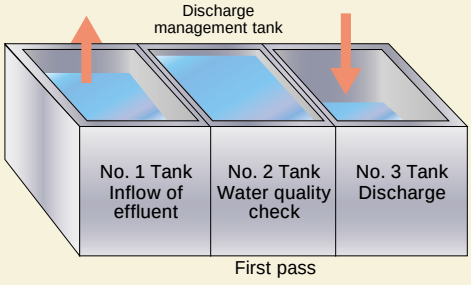
● Reducing Nitrogen and Phosphorous in Effluent

DENSO is pushing ahead with measures to reduce the use of chemicals that contain phosphorous or nitrogen or find substitutes for them to help prevent the eutrophication of rivers into which wastewater is released as well as the Ise and Mikawa bays.

Water Quality Management System



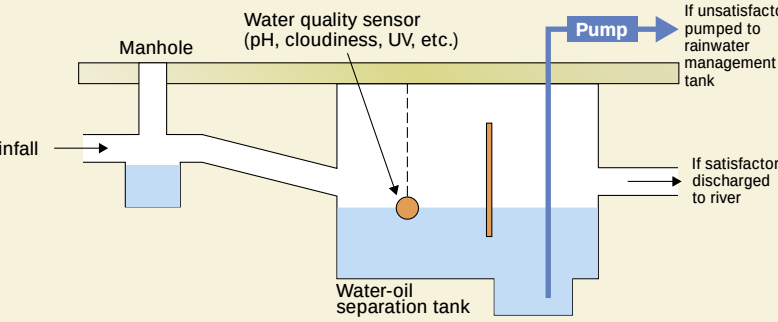
Discharge Management System



	No. 1 Tank	No. 2 Tank	No. 3 Tank
First pass	A	B	C
Second pass	B	C	A
Third pass	C	A	B
	⋮	⋮	⋮
Nth pass	A	B	C

A: Inflow of effluent B: Water quality check
C: Discharge

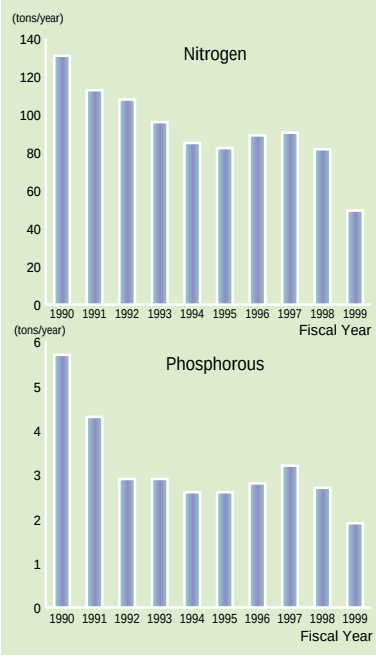
Rainwater Management System



DENSO is prioritizing the substitution of nitric acid—used in the cleaning of aluminum products—with sulfuric acid because nitric acid contains harmful nitrogen. We are also making it a priority to dilute the concentration of aqueous ammonia used in cleansing semiconductor wafers.

In addition, with the intention of further reducing the quantities of nitrogen and phosphorous in wastewater, we have installed denitrifying and dephosphorizing wastewater treatment facilities at some of our production plants. These facilities can also remove nitrogen from high-nitrogen content waste for later disposal by means of a condenser.

Nitrogen and Phosphorous Emission Volumes

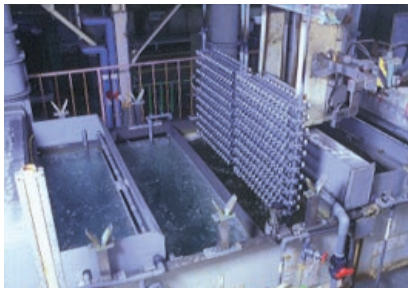


● Reducing Nitrogen in Wastewater—A Case Study Switching to Nitric Acid Substitutes in Alunite Treatment

In December 1999, the Components Production Department at DENSO's Nishio Plant completed the switch from using nitric acid (HNO_3) to using sulfuric acid (H_2SO_4) in the alunite pretreatment of production components. This move marks a milestone in Companywide efforts to substitute and reduce the use of chemicals, including nitrogen, which cause eutrophication.

Aluminum components are subjected to alunite treatment to improve their corrosion resistance and general durability. It is a process particularly appropriate for gasoline and diesel pumps. This etching process is designed to neutralize and activate the surface of the aluminum, and, until recently, nitric acid was used. There was no potentially harmful wastewater produced directly by this etching process because the waste acid was safely disposed of by an outside company. However, with certain components, subsequent cleaning processes generated wastewater containing nitric acid due to trace residues on the surfaces of the components. This wastewater was deemed to be acidified wastewater and was subjected to on-site wastewater treatment. However, with current wastewater treatment systems, it is difficult to entirely remove nitrogen, and the nitrogen that could not be removed was discharged in the wastewater into the public water system.

Alunite treatment process—now free of nitric acid



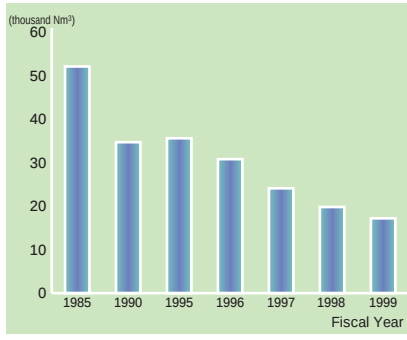
The two central Japanese prefectures of Aichi and Mie abut the bays of Ise and Mikawa, which have eutrophication problems, and the prefectures have strengthened their regulations to deal with this eutrophication. In response, DENSO determined to make the switch to using sulfuric acid in alunite treatment. To make the use of sulfuric acid practicable, two obstacles had to be overcome: an alkali had to be found that would not generate smut in the initial degreasing process and the concentration of sulfuric acid had to be precisely adjusted so that it would have the same etching capability as the formerly used nitric acid.

By switching to sulfuric acid, DENSO was able to reduce the concentration of nitrogen in discharged water from 12.5mg/l to 8.4mg/l. Moreover, the acid-containing waste liquid generated by the alunite treatment that was formerly treated by an outside company is now reusable, resulting in reductions in waste and in the cost of chemicals.

● Reducing Cyanide and Chromium in Wastewater

DENSO plants that use cyanide and chromium in the plating and surface treatment of products decontaminate the wastewater from these processes at a wastewater treatment plant. Additionally, to prevent any environmental pollution before it occurs, we are striving to remove chromium and cyanide from the chemicals that we use in the surface-treatment process. We are moving to a sealed-off system whereby the harmful substances in the chromium-containing effluent generated in the underground coating treatment process are recovered, the wastewater is reused, and there is no release of any sort into rivers or other bodies of water.

SO_X Emissions



Atmospheric Pollution

Nitrogen oxide (NO_X) compounds, sulfur oxide (SO_X), and particulate matter (P.M.), all of which are atmospheric pollutants, are emitted by melting furnaces and boilers. To reduce emissions of these substances into the atmosphere, DENSO is moving ahead with a shift to higher-quality, less-polluting fuels and installing dust-collection devices. Of particular note is DENSO's success in reducing SO_X emissions through a switch from using heavy oil to using town gas for powering furnaces and boilers as well as the increased utilization of low-sulfur fuels.

● Compliance with Incinerator Regulations

At DENSO, slurry generated in the course of wastewater treatment is reduced in volume in incinerators. This slurry contains almost no chlorine, which is considered to be one of the factors in dioxin formation, and, by maintaining the incinerator at a temperature of around 800°C and operating it in a responsible manner, the production of dioxins can be averted.

All of DENSO's incinerators that have a treatment capacity of between 200kg and 2 tons an hour are already fully compliant with new dioxin emission standards (10ng-TEQ/Nm^3) that will come into effect from December 2002.

Management of Chemical Substances

DENSO carries out a thorough prior assessment—covering environmental, safety, and fire prevention considerations—using materials safety data sheets (MSDSs) whenever the Company considers using a chemical substance it has not used before or whenever it installs or improves chemical-handling equipment. In fiscal 1999, we carried out 1,007 such prior assessments of chemical substances and 2,324 prior assessments of equipment.

Adhering to the spirit of the Pollutant Release and Transfer Register (PRTR), we have taken the necessary steps to keep careful track of the volumes of chemicals contained in semifinished and other materials, the volumes handled in production processes, and the volumes released into the environment. At the same time, we are working to reduce the volumes of chemicals that we use, manage them in a proper fashion at all times, and prevent pollution of the soil, atmosphere, and water. We are also working to construct a comprehensive chemicals management system that includes information on chemical substances contained in our products. Simultaneously, we are aiming to expand the number of chemicals that are subject to rigorous management.

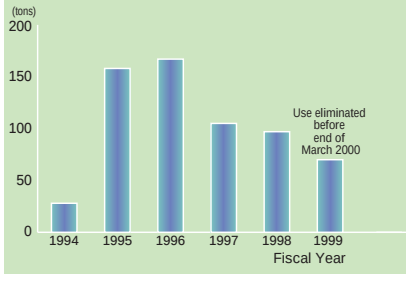
DENSO uses 24 of the 176 chemicals targeted by the Japanese Environmental Agency's PRTR Pilot Program. For more details on DENSO's handling of these substances, please refer to page 43, where the relevant data is set out for each plant.

Eliminating the Use of Ozone-Depleting Substances

In the past, DENSO used CFC-113 (a designated chlorofluorocarbon) and 1,1,1-trichloroethane in the manufacture of electronic components and the processing of machine parts. Both of these substances are recognized as contributing to the depletion of the ozone layer. In advance of international regulations to protect the ozone layer under the Montreal Protocol, DENSO phased out the use of CFC-113 in December 1994 and 1,1,1-trichloroethane in August 1995.

From 1995, DENSO used HCFC-225 as a cleaning agent to remove flux (an auxiliary soldering agent) from automotive IC parts after soldering, as HCFC-225 has a lower ozone depleting coefficient than CFC-113. However, under international regulations, HCFCs must be completely eliminated by 2020. In light of this, DENSO decided to develop the technology that would render the early elimination of HCFCs from the workplace possible. We committed to the joint development with other manufacturers of water-soluble cleaning agents, and, as a result, we were able to phase out HCFC-225 completely by the end of fiscal 1999, in line with our initial plans. With this success, DENSO workplaces now use no ozone-depleting substances whatsoever.

HCFC-225 Use



Purchasing and Distribution

Green Purchasing

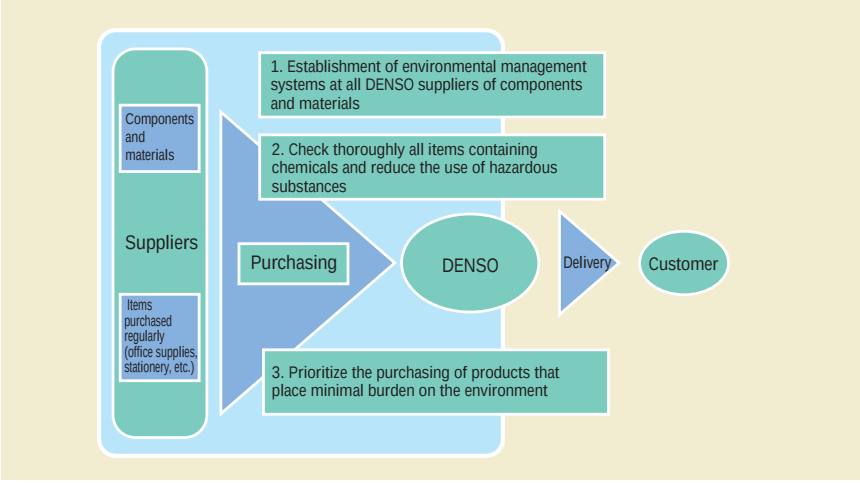
As part of our basic policies outlined in DENSO EcoVision 2005, we have vowed to “develop, design, and produce with regard for the environment in every way.” To realize this vision, the cooperation of our merchandise suppliers, who are also our partners, is indispensable. To reduce the total environmental burden that our products put on the environment, we will promote green purchasing, making every effort to purchase materials—including sub materials—and components that place a minimal burden on the environment from suppliers who are themselves environmentally aware.

As described in DENSO EcoVision 2005, we have begun to push ahead with Groupwide green purchasing as an integral part of our approach to environmental protection. Group companies share the same basic policies and the measures designed to execute them. The DENSO Group is working hard to make green purchasing a reality.

The Formulation of Green Purchasing Guidelines

We have three principles with regard to green purchasing, which are set out in the diagram below. They are to demand environmental compliance from suppliers, to monitor environmentally hazardous substances and reduce our use of them, and to make our purchase of everyday goods as green as possible. DENSO deals regularly with some 650 different suppliers and purchases approximately 600,000 different parts and 10,000 types of materials. When we embarked in earnest on a program of green purchasing, we drew together the information necessary to secure the understanding and cooperation of our suppliers into our Green Purchasing Guidelines, which we then disseminated to all our suppliers with the request that they implement the policies outlined.

Green Purchasing



The Three Principles

(1) To urge our suppliers to be environmentally aware, we aim to have all our suppliers set in place environmental management systems by the end of fiscal 2003, based on our request that they take the necessary steps to acquire ISO 14001 certification.

(2) To monitor environmentally hazardous substances and reduce their use In response to the wishes of our customers, we have for some time been providing them with relevant information about product specifications and their constituent materials, including information about chemicals. To do so requires a great deal of research labor on our part. By creating a database on the components and materials that we purchase, we intend to be able to respond quickly to any customer requests in this area and thereby reduce the quantity of environmentally hazardous substances used along the supply chain.

(3) To make our purchase of everyday goods as green as possible, we are enhancing our Companywide approach to this issue by taking such measures as prioritizing the purchasing of products that have been designed and made with consideration for the environment, in particular those which have been accredited with an environmental certification, such as Japan’s Eco Mark.

Distribution

The transportation of raw materials and components purchased by DENSO, the shipment of DENSO products, and the delivery of components for repairs are all principally carried out by truck. DENSO is working to reduce the level of CO_2 emissions and other exhaust gases by striving to increase transportation efficiencies, principally by sharing cargo space when possible and by improving load efficiency. Additionally, we are implementing a partial shift to other forms of transport, such as railroads and domestic container ships.

We are also promoting the simplification of the packaging that we use and making it easier to return, thereby controlling the generation of waste and conserving resources.

Total Approach to Transportation

We are placing greater emphasis on the sharing of transportation with other companies to improve load efficiency and turn-around rates. Reducing the number of vehicles used in transporting goods directly reduces the amount of energy consumed and exhaust gas emissions.

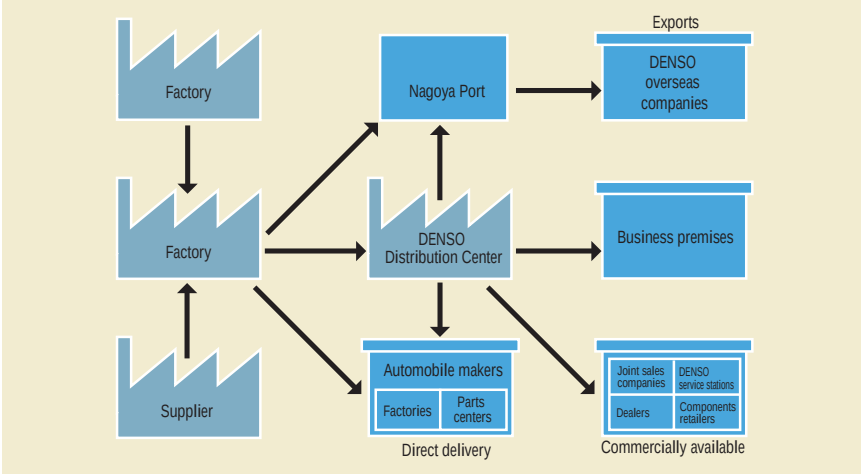
We are also encouraging the use of intermediate distribution terminals positioned near railheads as well as near our customers so that we can significantly reduce the total mileage covered by our trucks.

● Case Study—Modal Shift Inaugurating a Composite Transport System Using the Japan Freight Railway Company (JR Freight)

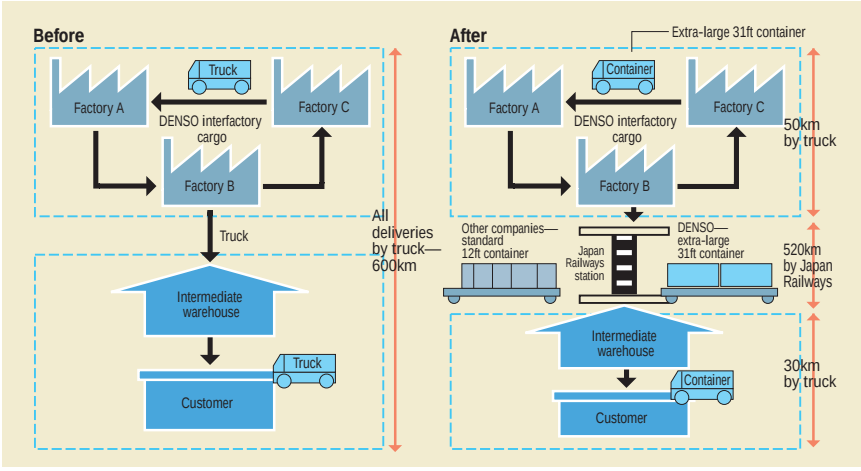
Formerly, DENSO delivered almost all of its products to even its most distant domestic clients exclusively using trucks. This inevitably raised issues both of high transportation costs and excessive exhaust gas emissions.

As a result of these concerns, DENSO evolved a composite transport system in which local transportation is performed by truck and long-distance transportation by JR Freight, resulting in a reduction in both transportation costs and exhaust gas emissions due to a decline in the number of trucks used.

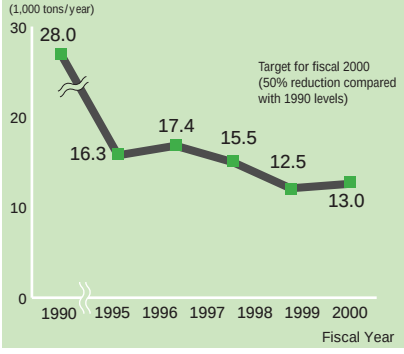
DENSO's Distribution System



Modal Shift



Volume of Cardboard Used by DENSO



Our Approach to Packaging Materials

We are pressing ahead with measures designed to simplify our packaging materials and make them easier to return and recycle, conscious of the need to reduce waste and conserve natural resources.

Moreover, we are working to lengthen the working lives of such transportation materials as returnable containers, partitioning materials, and pallets that have already been repeatedly reused.

Currently, cardboard packaging material comprises some 80% by weight of the packaging that DENSO buys and it is generally discarded after use. We are promoting a switch to returnable containers and the use of thinner materials. From April 2000, we began to switch from wooden pallets to plastic pallets, which last longer.

By taking these initiatives, DENSO has succeeded in reducing the quantity of cardboard packaging material it uses from 28,000 tons in 1990 to 13,000 tons in 1999, a reduction in excess of our target of 50%.

Collapsible container when assembled (left) and when folded up (below)

Product Recycling and Reuse

Product Recycling

The Japan Automobile Manufacturers Association (JAMA) and automobile makers have formulated and announced action plans on their own initiative to deal with the recycling of end-of-life vehicles. In addition, recently there has been a trend in Europe to stipulate in law what proportion of a car about to be scrapped must be recycled, and the approach of the automobile manufacturing industry to recycling has become more and more important.

DENSO is already accustomed to indicating on its vehicle parts made of plastic or rubber what precisely they are made of and has made great progress in research into recycling technologies. From fiscal 1999, we decided to set numerical recycling targets for each of our products and to turn our attention to developing products that can help to raise recycling rates.

Improving Recyclability

We have formulated a recyclability appraisal method for DENSO products based on the calculation methods outlined in JAMA's Definition of Recyclability Rate set out by their Scrap Car Recycling Initiative. Through more stringent assessment criteria, the intention is to raise from the design stage the recyclability rate of end-of-life vehicles. For more information on our recyclability appraisal method, please refer to the flow chart above. In fiscal 1999, we introduced this appraisal method as an internal standard across all Company design departments. After investigation, we were able to discover that, based on this appraisal method, DENSO automobile components have an overall recyclability rate of approximately 88%. We have set a Companywide target of raising recyclability rates to 95% or above by 2005. Given the introduction in Europe in a few years' time of scrap vehicle recycling regulations and the imminent arrival in Japan of a voluntary industrywide recycling target, we, as a components manufacturer, have to attain almost total product recyclability. As such, we have established objectives for each of our products to ensure that we reach this higher goal.

In May 2000, we introduced a recyclability appraisal system for product design work and are continually making refinements to this new system.

Development of Recycling Technology

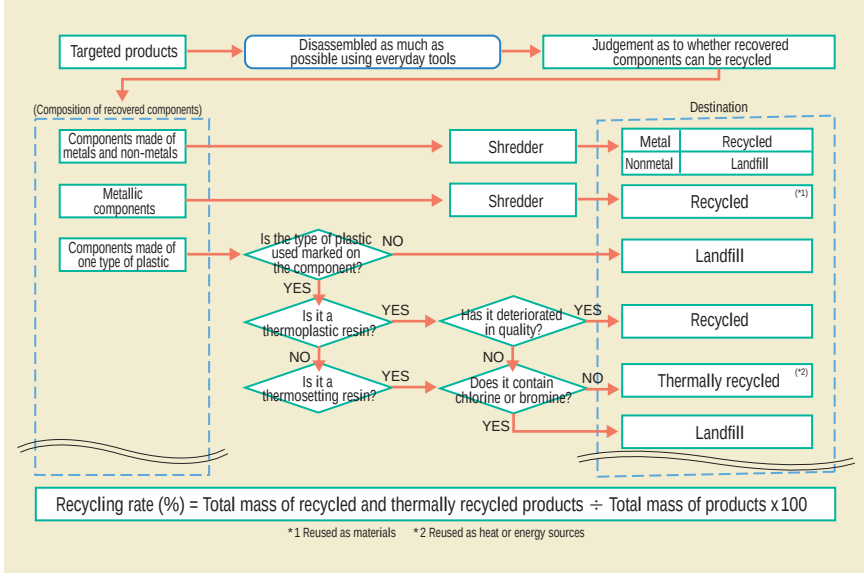
We are aiming to produce components made of fewer types of materials so they are easier to recycle. At the same time, we are reviewing product configurations so that they are easier to disassemble or break down into constituent materials, concentrating on plastic and rubber products, which so often end up disposed of in landfills. In addition, we are

Outline of Numerical Targets Set by the Ministry of International Trade and Industry's Recycling Initiative

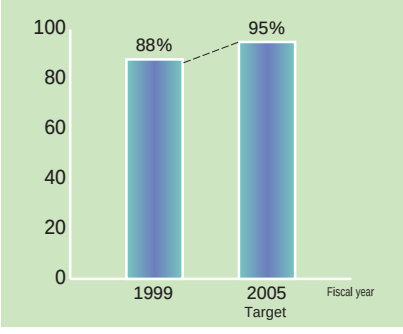
Recycling Rate	After 2002	After 2015
End-of-life vehicles (by weight)	A recyclability rate of 85% or more	A recyclability rate of 95% or more
Landfill disposal volume (by area)	Three-fifths or less of 1996 levels	One-fifth or less of 1996 levels
New model vehicles	A recyclability rate of more than 90%	——

Hazardous Substances	By the End of 2000	By the End of 2005
Use of lead (by weight) (not including batteries)	Approximately one-half or less of 1996 levels	Approximately one-third of 1996 levels

DENSO's Product Recyclability Appraisal Method



Recyclability Rates of DENSO Products



working hard to develop recycling technology applicable to compound materials, electrical components, and bulky parts made of polypropylene that have been commercially recovered.

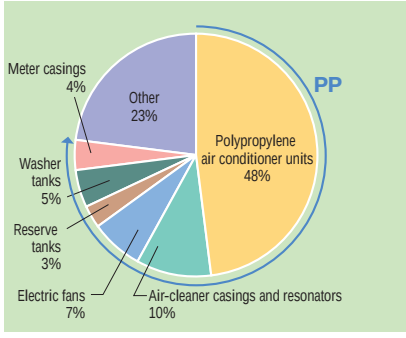
Our plans for the future include a more focused approach to information sharing with vehicle manufacturers, academic bodies, government bodies, and those engaged in the vehicle disassembly business, which we hope will help to raise the effectiveness of recycling as well as total recycling rates. We intend to sustain our commitment to R&D in the field of recycling technology, based on the prevailing conditions in the recycling business and the prospects for subsequent advances in recycling technology.

● Case Study: Research into the Recyclability of an Air Conditioner Unit

Currently, when a vehicle reaches the end of its life cycle, DENSO's plastic components are not recycled but are shredded and used as landfill. Of the volume of plastic used in DENSO products that ends up this way, polypropylene used in air conditioner units accounts for about 50%. (Please refer to the pie chart at the top of the page.)

At DENSO we take air conditioner units that have been recovered on the open market and assess to what extent they have deteriorated. We are also making progress with standardized appraisal tests using recycled materials made from the polypropylene components of these air conditioner units. As can be seen in the illustration and table above, the constituent components of the air conditioner unit are not separated. DENSO has made practicable the technology required to recycle the key components of commercially recovered air conditioner units as material for the casings of new units.

Where Plastics Are Used in DENSO Products (By volume)



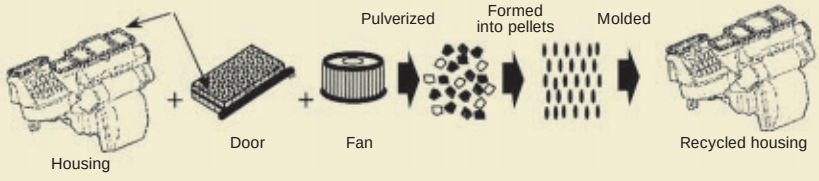
Recycling Model for Air Conditioner Units

Components of an Air Conditioner Unit Made of Polypropylene

Name	Material	Relative Amount of Total Polypropylene Used by Weight (%)
Housing	PP-T20	83
Door	PP-Mi40	11
Fan	PP-W10	4
Sealant	Polyurethane foam	2

Recycling an Air Conditioner Unit

Recycling without separating the housing, door, fan, and seal



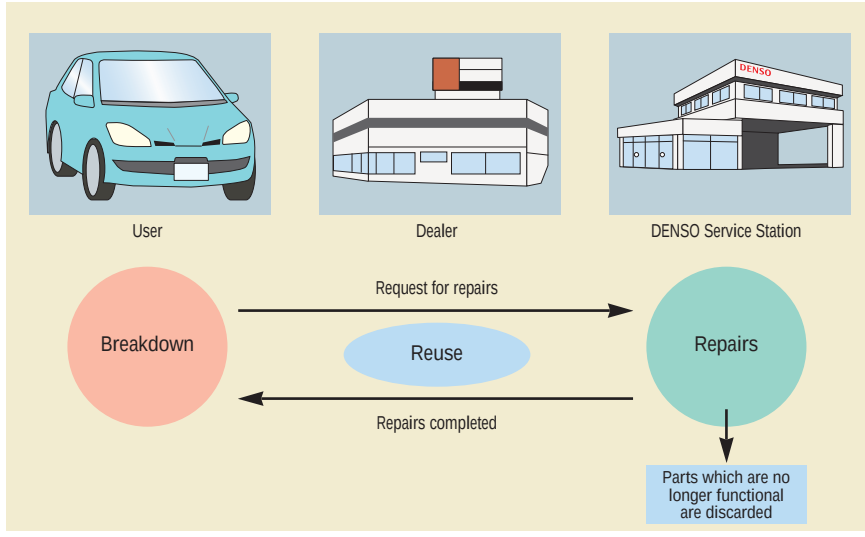
Product Reuse

There are currently 800 contracted DENSO service stations throughout Japan. They inspect and repair automotive components made by DENSO. If the car has broken down, it is usually brought to a DENSO service station after the request for repairs has been made to the automobile dealer or the repair shop. (Please refer to the diagram on the right.) When the service station comes to repair the component in question, only the parts that are no longer functional—due to abrasion or other causes—are replaced. The many other parts that make up the component are reused. With components that frequently have to be repaired, such as starters, alternators, and air conditioner compressors, between 80% and 95% (by weight) of the parts are reused. This results in substantial cost benefits for the customer, a reduction in the volume of waste, and a saving of natural resources.

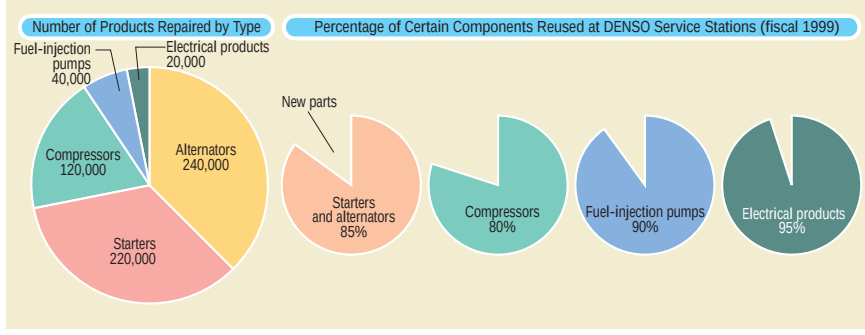
Moreover, DENSO has developed machines to recover and reuse refrigerants. Located at DENSO service stations, automobile dealers, and elsewhere nationwide there are some 13,000 machines that can recover and reuse refrigerants CFC-12 and HFC-134a, a CFC substitute that also contributes to the greenhouse effect. As a major car air conditioner manufacturer, DENSO is participating positively in the construction and operation of JAMA's Refrigerant Recovery and Decomposition System, which JAMA is currently deploying nationwide. Refrigerants recovered at DENSO service stations between January 1998, when the system began, and June 2000, amounted to 98,000 one-liter cylinders containing a total of 69 tons of gas. This constituted 28% of all the gas recovered by JAMA members.

Repairs to an alternator (top) and an air conditioner at a DENSO service station

Product Reuse Cycle Using the DENSO Service Network



Reused Parts and Results



● Establishment of a New Company in the Reuse Business

Through a 100% equity investment, in June 2000 DENSO established a new company, DENSO Remani Corp., based in Anjo City in Aichi Prefecture, which undertakes the recycling of automobile starters and alternators. From its service stations, DENSO Remani collects starters and alternators from its customers for reconditioning and sells these items at its service stations. The plan is for the company to handle some 50,000 starters and alternators in this way by fiscal 2002. In the future, we envision that the company will be in a position to promote recycling and resource conservation on a global scale.

DENSO has traditionally carried out repairs to starters and alternators at its service stations. In response to the increasing number of parts that were brought in for repair as a result of consumer demand for recycling and the increasing average age of vehicles, we decided to establish DENSO Remani with the intention of providing a backup system for our other service stations. DENSO Remani is currently investigating the possibility of selling refurbished parts with a manufacturer's warranty.

● Environmental Protection Measures Being Taken at DENSO Service Stations (Shinoda Company)

Company Outline

Location: Hinode-cho, Toyota City, Aichi Prefecture
Employees: 23
Products handled: Car air conditioners and engine electrical products

We visited Executive Director Noriki Shinoda of Shinoda Company, which is one of DENSO's service stations, and asked him about the current state of the reuse business and environmental measures being taken by the company.

—How many vehicle parts do you refurbish?

Shinoda: In 1999 we refurbished about 2,500 starters and alternators and about 300 compressors.

—What difficulties have you encountered in the reuse business?

Shinoda: Striking a balance between executing repairs quickly and minimizing the number of parts replaced is important, I think. We have between 500 and 600 core components on hand so that we can turn components around quickly. If we reduce the number of parts that have to be replaced, we can sell the components more cheaply, and that is good for the environment too, of course.

—What do you have to be careful about when refurbishing car air conditioners?

Shinoda: We refuse requests just to replenish refrigerant, because, if we do not repair the place where the refrigerant has leaked from, then the refrigerant will just leak out into the atmosphere again, damage the ozone layer, and worsen global warming.

—How do you use machines for recovering the refrigerant from car air conditioners?

Shinoda: We collect the refrigerant when the air conditioner is being refurbished, and, when the refurbishment is completely finished, we reuse it. Our customers are aware of this, and we think that is one of the reasons they trust us.

—What are you doing for the environment as a company?

Shinoda: We are promoting carefully energy conservation and separation of waste products. We separate waste into seven types, and we take difficult-to-dispose-of products, such as batteries, to designated disposal specialists.

—Is there anything else that you feel you can do with respect to environmental issues?

Shinoda: At the moment, we are focusing on the continued separation of waste products. The attitude of individual employees is important, and we remind them of this at morning meetings. These days, even small companies like us are aware of the importance of separating waste prior to its collection so it can be more easily recycled, and I would like people to make sure they separate their waste properly at home, too.


Shinoda Company


Noriki Shinoda, Executive Director of Shinoda Company

Environmental Protection Activities of DENSO Group Companies

Fundamental Thinking

All the companies that comprise the DENSO Group have a global viewpoint and are striving to enhance their environmental management capabilities. For domestic Group companies, there is the opportunity to confer on shared goals and policies through the DENSO Group Environmental and Safety Council, where they can also exchange information and consider how to raise their environmental management standards. For overseas Group companies, there are regional president meetings as well as regular environmental and safety checkups. In these and other ways, DENSO is supporting improved environmental standards.

Domestic Case Studies

● Asmo Co., Ltd.

Founded: April 1, 1979

Employees: 5,120

Principal Businesses: Development, manufacture, and sale of small motor systems for automobiles and electrical office equipment

Asmo is one of the world's leading makers of small motors for use in automobiles. It boasts the biggest share of the global market for washer systems, window motors, and blower motors. It acquired ISO 14001 certification in January 1998.

Asmo has long been committed to environmental management and has been energetic in promoting improvements to production processes and recycling activities to reduce the volume of waste generated. In the 10 years from fiscal 1990 to fiscal 2000, the company succeeded in reducing the volume of waste generated 75%. Currently, Asmo is pushing ahead with programs designed to completely eliminate the generation of waste products that have to be dumped in landfills, a target it aims to attain by 2003.

Asmo has set up an internal environment committee that is working hard to take appropriate environmental measures—from the design stage it investigates the recyclability of the product being designed and implements policies to reduce the quantity of hazardous substances being used. Asmo is also engaged in the education of its employees, enlightening them to the importance of environmental protection, and encourages them to actively participate in local environment protection committees and environment-related volunteer activities so that every individual member of staff has the opportunity to contribute to protecting their local environment.

Asmo Co., Ltd.

● DENSO TAIYO CO., LTD.

Founded: March 30, 1984

Employees: 60 (of whom 54 are physically disabled)

Principal Businesses: Manufacture of combination meters for automobiles

DENSO TAIYO was established by DENSO together with a government-registered social welfare organization, JAPAN SUN INDUSTRIES. The JAPAN SUN INDUSTRIES, AICHI BRANCH OFFICE is in charge of looking after employees' lifestyles, while DENSO TAIYO is responsible for production management. Together, the two organizations help physically disabled people participate in society and lead lives of greater independence. In February 2000, the JAPAN SUN INDUSTRIES, AICHI BRANCH OFFICE, whose headquarters are in Aichi Prefecture, and DENSO TAIYO acquired ISO 14001 certification. Together, they employ a total of 249 people, 205 of whom are physically disabled.

DENSO TAIYO is principally engaged in the assembly of combination meters and fuel senders for use in automobiles. The principal burdens the company places on the environment are to be found in such waste materials as packaging generated by items brought in and used in the manufacturing process as well as in the waste that comes from the living facilities attached to the premises, such as the dormitory and the dining hall. In 1999, workers at DENSO TAIYO embarked on a campaign to reduce and recycle packaging materials, in particular cardboard and polystyrene foam, and, within the space of a year, they succeeded in improving the recycling rate from 45% to 55%. In the dining hall, strenuous efforts were made to reduce the amount of leftover rice and other food by improving the menu and the portions. Combined with a thorough enforcement of regulations concerning notification of absence for meals, the employees managed to reduce the amount of food left over for every 100 meals from 18 kg to 15 kg.

DENSO TAIYO feels that it is important that individual employees raise their level of environmental awareness in their private lives, too. A booklet on the environment is distributed to employees in which they record their resolutions about environmental activities, which they then strive to implement. A newsletter called *Environment News* is distributed to employees every month or so, from which they can learn more about the

DENSO TAIYO and JAPAN SUN INDUSTRIES, AICHI BRANCH OFFICE

Environment Notice Board at the factory

environment, and employees are notified monthly by means of an Environment Notice Board about whether environment-related targets have been attained.

Overseas Case Studies

DENSO has business interests all over the world. Environmental management standards of the highest quality are indispensable in establishing a solid business foundation overseas. We do much more than just obey the laws and regulations of the countries in which we operate; we also support the creation of systems in which each facility can sustain first-rate environmental management. This is done by introducing globally applicable safety, health, and environment standards and by bringing overseas environment staff to Japan for training.

● DENSO Manufacturing Australia Pty. Ltd. (DMAU)

DMAU was established in June 1972. It produces and sells heaters, radiators, canisters, and filters. In 1997, it was presented with a City Waste Water (CWW) Environment Program Award and, in 1999, a Victoria State Environment Protection Authority (EPA) Cleaner Production Award. In February 1999, the company acquired ISO 14001 certification.

At DMAU, people are making efforts to reduce the burden that production processes impose on the environment. To systematically remove lead from production processes, the majority of copper and brass used in production has been substituted by aluminum, thereby rendering the use of lead alloys and product cleaning unnecessary. In consideration of the safety of workers carrying out painting processes, DMAU has replaced all solvent-based paints used in the factory with water-based ones. As a result, solvents have disappeared from the workplace, and the indoor environment has been greatly improved.

Accepting the Victoria State Environment Protection Authority (EPA) Cleaner Production Award

In addition, scrap plastic is now being recycled, the waste exchange system has been upgraded, and efforts are being made to reduce the volume of used packaging materials that are thrown away.

The employees of DMAU are guided on how to improve their environmental awareness both at home and in the workplace and are urged to improve their environmental ethics. In the workplace, the volume of paper used in business procedures is being reduced—DMAU achieved a 30% reduction in 1999 alone—and the number of drinking cups being used is falling.

● DENSO Manufacturing UK Ltd. (DMUK)

DMUK was established in Britain in August 1990. It produces both air-conditioning systems and heaters. In 1999, it won an Energy Accreditation Award sponsored by the British government. The British Environment Management System BS 7750 is a British standard which was accredited to DMUK in 1995 and certification for ISO 14001 was acquired in December 1996.

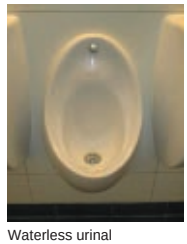
British people are renowned for the importance they attach to the careful use of water resources, and DMUK, likewise, makes strenuous efforts to use water effectively. To reduce the amount of tap water consumed as much as possible, DMUK installed a system to use rainwater. The rainwater that falls on the roof of the plant is collected in two large tanks, which have a capacity of 250m^3 each, and used in production processes. DMUK uses this stored rainwater and has set a target of using 1,000m^3 of rainwater each month. DMUK is currently investigating the feasibility of a wastewater recycling system which would enable water that has been used, following treatment, to be reintroduced into the production process and used again.


Rainwater collection tanks

The molding machines used in the production process emit a great deal of heat, resulting in an excessive amount of electricity being consumed in regulating the temperature of the plant. By covering the molding machine heaters with ceramic insulator covers, the amount of electricity consumed has been substantially reduced, assisting in conserving natural resources. Raw materials are also recycled—waste plastic is pulverized and reused in the molding process.


Ceramic heater cover

In the wing of the plant that houses the offices, light systems with occupancy sensors have been installed in all locations, such as toilets, meeting rooms, and locker rooms. Lights are automatically switched off when a sensor detects there has been no movement for five minutes, which helps to prevent the careless waste of electricity. Furthermore, state-of-the-art urinals that do not need water to operate have been installed, further reducing water consumption.


Waterless urinal

Communication

Fundamental Thinking

DENSO is making progress with continuous improvements to its environmental protection activities. DENSO pledges to amplify the scope of its activities in this area still further and, so that the Company's position and activities are understood in more concrete terms, it is actively endeavoring to provide all its stakeholders with relevant environmental information as well as communicating effectively with the communities in which it operates.

Contributing to Society

Recognizing that protection of the environment is one of the most important issues facing humanity as a whole, DENSO supports a number of organizations working in the environmental field and the spontaneous efforts of its staff to engage in recycling and environmental protection activities. In these and other ways, DENSO is moving ahead with its contributions to society.

Type of Activity	Guiding Philosophy	Details
Support for Environmental Organizations	Supporting NGOs active on a global scale in their efforts to preserve the environment in developing countries	Support for the Organization for Industrial, Spiritual and Cultural Advancement (OISCA–International), which dispatches volunteer experts to work in agricultural projects throughout the Asia-Pacific region; support for the Keidanren Nature Conservation Fund.
Protection of Local Environments	Working to preserve the environments surrounding DENSO workplaces to preserve the richness of the natural environment	Assisting with the conservation of the Heigen Genjibotaru no Sato in Nishio, an area where the rare Genji Firefly breeds; assisting with the protection of the Rabbit-Eared Iris in the Kozutsumi-Nishi Pond in Kariya; cleanup activities on the Hieda River in Anjo; and zero-waste campaigns in connection with Japan's Green Day national holiday
Recycling	Thinking globally, acting locally—working for a recycle-oriented society, starting with daily-use products in the home	Collecting clothing in Kariya and Daian for subsequent use as part of emergency relief packages

● Protecting Colonies of the Rabbit-Eared Iris (*Iris Laevigata Fisch*) around Kozutsumi-Nishi Pond in Kariya

The colonies of wild rabbit-eared irises around Kozutsumi-Nishi Pond in northern Kariya have been designated a national treasure, and a voluntary organization called the Rabbit-Eared Iris Protection Group has been formed to work for their protection. In recent years, the group has suffered from a shortage of volunteers, so, in 1996, DENSO resolved to begin supporting its activities. During fiscal 1999, many DENSO volunteers participated in grass cutting and the cleaning up of bamboo thickets in the protected area and its surroundings. These activities take place in April, August, and December.

● Protection of Heigen Genjibotaru no Sato, a Major Breeding Area for the Rare Genji Firefly (*Luciola Cruciata*)

Since 1995, the Nishio Plant has been helping to protect the Genji firefly, which has become rare throughout Japan. During fiscal 1999, DENSO volunteers cut grass in areas inhabited by the fireflies and helped direct car parking for people who came to see them. The DENSO volunteers participate in these activities four times a year, in April, June, October, and December.

● Planting Trees at a Wildlife Park in England

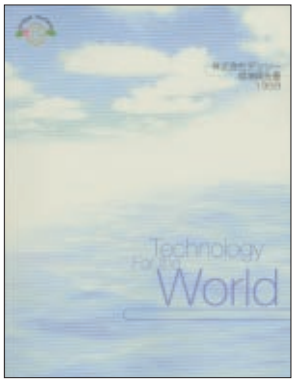
In 1990, DENSO Marston created a wildlife park on the grounds of its factory site in Marston, Northern England, and opened it to local residents. This park, which covers some 30,000m^2 has a lake with many resident waterfowl and a river flowing through it that runs on to the North Sea. Moreover, there is an annual river cleanup drive, which was held this year for the 10th time.

Information Disclosure

DENSO is making every effort to disclose information about the Company and the environment to all its stakeholders. DENSO is engaged in an ongoing and fulfilling dialogue with the communities in which it operates to assist in making the Company's position and efforts more clearly understood.

● Publication of the *DENSO CORPORATION Environmental Report*

In 1999, DENSO became the first Japanese automobile components manufacturer to publish an environmental report. We printed 5,000 copies of the Japanese edition and 2,500 of the English edition. The contents of the report are also on our Web site, in both English and Japanese. The environmental report is distributed to our clients,



1999 *DENSO CORPORATION Environmental Report*

government bodies, and the media, and performs a valuable role in keeping DENSO employees informed about what is happening in other parts of the Group.

● Welcoming Environment-Related Inspection Tours

In response to requests, we are more than willing to open our premises to external inspections and show visitors how we are operating our environment-related facilities. As part of these efforts, in 1999 we welcomed delegations from the Chubu Industrial Engineering Association and the United Nations Center for Regional Development.

We are currently investigating the possibility of establishing an environment-related inspection tour option entirely separate from the factory inspection tour course that we presently offer. We hope to welcome many more visitors in the future.

● DENSO Products with an Environmental Theme on Display at Exhibitions

Visitors to the following exhibitions have had the opportunity to see and learn about some of DENSO's products that help to reduce the impact that automobiles have on the environment.

1999 Automotive Engineering Exhibition

Dates: May 19–21, 1999
Venue: Pacifico Yokohama
Sponsors: Society of Automotive Engineers of Japan, Inc.
DENSO exhibits: environment-conscious products and technologies in the automotive field

At the 1999 Automotive Engineering Exhibition, DENSO deployed its proprietary reusable exhibition display stands in an effort to limit the generation of waste products. These exhibition display stands have been used 33 times in the past three years.

The DENSO stand at the 1999 Automotive Engineering Exhibition

The 33rd Tokyo Motor Show

Dates: October 22–November 5, 1999
Venue: Makuhari Messe
Sponsors: Japan Motor Industrial Federation Inc.
DENSO exhibits: technologies and products designed to contribute to reducing the burden that automotive vehicles place on the environment as well as technologies and products relating to intelligent transport systems, which are intended, in part, to reduce the environmental damage caused by road traffic as a whole

DENSO managed its exhibits at the 33rd Tokyo Motor Show, placing great importance on minimizing the impact on the environment of the design and construction of its exhibition facilities. We only used materials that were environment-friendly, recyclable, or reusable.

History of DENSO's Environmental Approach/Awards

History of DENSO's Environmental Approach

Environmental Management Activities	1999	Publication of the *DENSO CORPORATION Environmental Report*
	1998	Establishment of the Product Recycling Subcommittee
	1998	Environment Exhibition held
	1998	All Japanese production facilities completed acquisition of ISO 14001 certification
	1996	ISO 14001 certification acquisition begun
	1996	Revision of environmental pamphlet *Everyone's Environment*
	1996	Formulation of Second DENSO Environmental Action Plan
	1995	Design of DENSO's environmental symbol mark
	1995	Complete elimination of ozone-depleting substances (excluding CFC substitutes)
	1994	Publication of environmental pamphlet *Everyone's Environment*
Response to Environmental Problems	1993	Establishment of Resource Conservation and Recycling Subcommittee
	1993	Formulation of DENSO Environmental Action Plan and DENSO Environmental Charter
	1992	Launch of DENSO Environment Committee
	1991	Installation of cogeneration system at Nishio Plant
	1991	Establishment of Recycling Committee
	1990	Establishment of Select Committee on Resources and Energy
	1988	Establishment of Special Committee on Chlorofluorocarbon Regulations
	1986	Establishment of Sectional Committee on Chlorine-Based Solvents
	1982	Introduction of Prior Assessment System for Determining Harmfulness of Newly Employed Materials
	1980	Promotion of closed galvanizing processes
Prevention of Pollution	1979	Establishment of Energy Committee
	1974	Establishment of Council on the Use of Management Resources (Promotion of Energy Conservation and Waste Reduction)
	1971	Safety, Health, and Pollution Department renamed Safety, Health, and Environment Department
	1970	Elimination of cadmium galvanizing
	1970	Formulation of Safety, Health, and Environmental Standards
	1970	Establishment of Safety, Health, and Pollution Division

Awards (1995–1999)

● Japan

Date of Award	Name of Recipient	Name of Award	Conferring Body
February 2000	Daian Plant	Award for Factory Energy Management Excellence (Heating Division) from the Director of the Agency of Natural Resources and Energy	Ministry of International Trade and Industry (MITI)
April 1999	DENSO	Technology Prize (for the common rail diesel fuel-injection system)	The Japan Society of Mechanical Engineers
February 1999	Nishio Plant	Award for Factory Energy Management Excellence (Electrical Division) from the Director of the Agency of Natural Resources and Energy	MITI
February 1998	Daian Plant	Award for Factory Energy Management Excellence (Electrical Division) from the Director of the Agency of Natural Resources and Energy	MITI
February 1997	DENSO	Prize for Energy Conservation Excellence (for a heater/cooler system using an economical kerosene heat pump)	The Japan Machinery Federation
February 1997	Anjo Plant	Award for Factory Energy Management Excellence (Heating Division)	MITI
February 1997	Takatana Plant	Award for Factory Energy Management Excellence (Electrical Division) from the Director of the Chubu Regional Bureau	MITI
April 1996	DENSO	Technology Prize (for a machine that recovers refrigerants for reuse)	The Japan Society of Mechanical Engineers
February 1996	Takatana Plant	Award for Factory Energy Management Excellence (Heating Division) from the Director of the Agency of Natural Resources and Energy	MITI
February 1996	Nishio Plant	Award for Factory Energy Management Excellence (Electrical Division) from the Director of the Chubu Regional Bureau of MITI	MITI
April 1995	DENSO	Grand Environment Prize/*Sankei Shimbun* Prize	Fujisankei Group
June 1995	DENSO	Grand Prize for an Invention (for a CFC recovery device)	Japan Institute of Invention and Innovation
March 1995	DENSO	Award from the Director of the Environmental Protection and Industrial Location Bureau (for environmental assessment of air conditioners)	MITI
May 1995	Kota Plant	Aichi Prefecture Governor's Prize	Factory Environment Greening Competition
May 1995	DENSO	Technology Prize (for an O_2 sensor)	The Ceramic Society of Japan

● Overseas

Date of Award	Name of Recipient and Country	Name of Award	Conferring Body
November 1999	DENSO Manufacturing UK Ltd. (United Kingdom)	Energy Efficiency Accreditation Award	British government
June 1999	DENSO Manufacturing Australia Pty. Ltd. (Australia)	Environmental Protection Authority (EPA) Cleaner Production Award	Australia EPA
1994–1999 (six consecutive years)	DENSO Manufacturing Tennessee, Inc. (United States)	Kentucky-Tennessee Water Environment Association Pretreatment Excellence Award	Kentucky-Tennessee Water Environment Association
December 1998	DENSO Manufacturing Michigan, Inc. (United States)	C3 (Clean Corporate Citizen) Award	State of Michigan
July 1998	Australian Automotive Air Pty. Ltd. (Australia)	EPA Cleaner Production Award	Australia EPA
February 1997	American Industrial Manufacturing Services, Inc. (United States)	California Water Environment Association Award	Association for the Protection of Water Quality, State of California
November 1995	Australian Automotive Air Pty. Ltd. (Australia)	Environment Protection Excellent Company Award	State of Victoria
October 1995	DENSO Manufacturing Australia Pty. Ltd. (Australia)	Excellence and Innovation Award	State of Victoria

Main Sites and Affiliates

Domestic Plants, Branches, Sales Offices, and Others

Site	Location
Headquarters	1- 1, Showa-cho, Kariya, Aichi 448-8661; Tel: +81-566-25-5511 (reception)
Tokyo Branch	2-15-13, Shoto, Shibuya-ku, Tokyo 150-0046; Tel: +81-3-5478-7711 (reception)
Sapporo Branch	7-2-27, Nijo Yamanote, Nishi-ku, Sapporo 063-0002; Tel: +81-11-614-3511 (reception)
Sendai Branch	2-6-1, Nigatake, Miyagino-ku, Sendai 983-0036; Tel: +81-22-238-9911 (reception)
Nagoya Branch	4-30, Hosho-cho, Minami-ku, Nagoya 457-0828; Tel: +81-52-619-1777 (reception)
Osaka Branch	1-7-19, Higashitenma, Kita-ku, Osaka 530-0044; Tel: +81-6-6355-2211 (reception)
Hiroshima Branch	4-16, Higashihiratsuka-cho, Naka-ku, Hiroshima 730-0025; Tel: +81-82-242-5200 (reception)
Fukuoka Branch	2-6-35, Sanno, Hakata-ku, Fukuoka 812-0015; Tel: +81-92-412-1177 (reception)
14 Others	

Site	Location	Products/Operations	Site Area (1,000m²)	Building Floor Space (1,000m²)	Number of Employees
Headquarters	1-1, Showa-cho, Kariya, Aichi 448-8661	Monolithic carriers, IC wafers, and applied electronic products	25.8	35.4	10,300
Ikeda Plant	5-1, Ikeda-cho, Kariya, Aichi 448-0044	Radiators and oil coolers	10.3	8.4	800
Anjo Plant	2-1, Nagane, Sato-cho, Anjo, Aichi 466-8511	Starters and alternators	40.7	24	2,700
Nishio Plant	1, Sumisaki, Shimohasumi-cho, Nishio, Aichi 445-8502	Air conditioners and heaters, radiators, fuel injection pumps, and electronic fuel injection components	126.7	56.6	7,700
Takatana Plant	1, Shinmichi, Takatana-cho, Anjo, Aichi 446-8507	Meters, oil filters, cellular phones, and display devices	36.3	23.2	2,800
Daian Plant	1530, Monzen, Daian-cho, Inabe-gun, Mie 511-0296	Ignition devices, safety-related equipment, oxygen sensors, actuators, sensors, and hydraulic solenoids	74.1	31.9	4,100
Kota Plant	5, Maruyama, Ashinoya, Kota-cho, Nukata-gun, Aichi 444-0193	Integrated circuits and electronic control components	28.3	21.8	4,000
Toyohashi Plant	3-23, Akemi-cho, Toyohashi, Aichi 444-8074	Air conditioner compressors, magnetic clutches, and car heater blowers	17.4	14.1	1,200
Agui Plant	1, Yoshiike, Kusaki, Agui-cho, Chita-gun, Aichi 470-2298	Machinery, tools, and robots	28.3	6.6	940
Kitakyushu Plant	5-4-1, Honjo Nishi-ku, Yahata, Kitakyushu, Fukuoka 807-0801	Automobile air conditioners	15.6	2.2	170
Zenmyo Plant	100, Ipponmatsu, Zenmyo-cho, Nishio, Aichi 445-0034	Electronically controlled injection pumps (ECD-V4, ECD-U2P) and IC cards	32	7.7	270
Hiroshima Plant	2-5-1, Kamiseinominami, Aki-ku, Hiroshima 739-0302	Radiators and radiator fans	3.3	1.4	150
Nukata Testing Center	1-2, Obou, Kiriyama, Nukata-cho, Nukata-gun, Aichi 444-3431	Performance evaluations of vehicle components	100.4	3	36
DENSO Research Laboratories	500-1, Minamiyama, Komenoki-cho, Nisshin, Aichi 470-0111	Semiconductors, information and communication systems, and research for micromachining	8.1	4.3	300

Subsidiaries and Affiliates

Domestic Group Companies (70 total)
Asmo Co., Ltd.; Anden Co., Ltd.; HamanakoDENSO Co., Ltd.; Daishinseiki Co., Ltd.; Kyosandenki Co., Ltd.; GAC Corp.; and others

Overseas Group Companies (74 total)
Production Companies (55 companies)

North America: DENSO Manufacturing Michigan, Inc.; DENSO Manufacturing Tennessee, Inc.; and others
South America: DENSO do Brasil Ltda.; and others
Europe: DENSO Manufacturing UK Ltd.; DENSO Barcelona S.A.; and others
Asia and Oceania: DENSO Manufacturing Australia Pty. Ltd.; DENSO (Thailand) Co., Ltd.; and others

Regional Headquarters, Sales Companies, and Others (19 companies)

DENSO International America, Inc.; DENSO International Europe B.V.;
DENSO International Australia Pty. Ltd.; DENSO International Singapore Pte. Ltd.; and others

Environmental Data by Plant (Results for fiscal 1999)

Water Pollution Data

Water quality and air pollution data are provided for each operating facility. (There are slight differences among items due to variations in materials used in production processes at different facilities.)

Plant	Indicator/ Substance*1	Control Value*2	Actual Measurement*3		
			Maximum	Minimum	Average
Headquarters and Kariya Plant	pH	5.8–8.6	8.5	6	6.7
	BOD (mg/l)	12.5	11.7	1.4	3.4
	COD (mg/l)	15	7.5	ND	4.8
	SS (mg/l)	15	8.7	ND	1
	Oil (mg/l)	2.5	ND	ND	ND
	Phenol (mg/l)	1	0.01	ND	0.01
	Copper (mg/l)	0.5	0.04	0.01	0.02
	Zinc (mg/l)	2.5	0.65	ND	0.08
	Soluble iron (mg/l)	2.5	0.2	ND	0.1
	Soluble manganese (mg/l)	2.5	ND	ND	ND
	Chromium (mg/l)	1	ND	ND	ND
	Fluorine (mg/l)	7.5	1.8	0.4	0.8
	Colon bacillus (#/cm³)	1,500	42	0	4
	Total nitrogen (mg/l)	15	13.8	2.2	7.3
	Total phosphorus (mg/l)	2	1.6	0.1	0.68
	Cyanide (mg/l)	0.2	0.08	ND	0.01
	Hexavalent chromium (mg/l)	0.1	ND	ND	ND
Ikeda Plant	pH	5.8–8.6	7.9	6.3	7.1
	BOD (mg/l)	12.5	3.3	0.7	1.9
	COD (mg/l)	15	5	ND	2.8
	SS (mg/l)	15	5.8	ND	1.2
	Oil (mg/l)	2.5	ND	ND	ND
	Phenol (mg/l)	1	0.01	ND	0.01
	Copper (mg/l)	0.5	0.04	0.01	0.03
	Zinc (mg/l)	2.5	0.48	ND	0.07
	Soluble iron (mg/l)	2.5	0.2	ND	0.1
	Soluble manganese (mg/l)	2.5	0.1	ND	0.1
	Chromium (mg/l)	1	ND	ND	ND
	Fluorine (mg/l)	7.5	1.2	ND	0.6
	Colon bacillus (#/cm³)	1,500	11	0	1
	Total nitrogen (mg/l)	15	4.2	0.4	2.5
	Total phosphorus (mg/l)	2	0.7	ND	0.03
Anjo Plant (Anjo Number 1)	pH	6.0–8.5	7.2	6.1	6.6
	BOD (mg/l)	12.5	2.2	ND	1.3
	COD (mg/l)	15	9.8	0.5	5.5
	SS (mg/l)	15	1.3	ND	1.3
	Oil (mg/l)	2.5	ND	ND	ND
	Phenol (mg/l)	1	0.01	ND	0.01
	Copper (mg/l)	0.5	0.11	0.01	0.07
	Zinc (mg/l)	2.5	1.1	0.16	0.6
	Soluble iron (mg/l)	2.5	0.2	ND	0.1
	Soluble manganese (mg/l)	2.5	0.1	ND	0.1
	Chromium (mg/l)	1	ND	ND	ND
	Fluorine (mg/l)	7.5	0.2	ND	0.1
	Colon bacillus (#/cm³)	300	8	0	1
	Total nitrogen (mg/l)	15	8.2	2.7	5.6
	Total phosphorus (mg/l)	2	0.08	ND	0.04
	Cyanide (mg/l)	0.2	ND	ND	ND
	Hexavalent chromium (mg/l)	0.1	ND	ND	ND
Anjo Plant (Anjo Number 2)	pH	6.0–8.5	7.4	6.6	7
	BOD (mg/l)	10	5.8	ND	1.5
	COD (mg/l)	10	7.7	ND	3.9
	SS (mg/l)	10	3.6	ND	0.6
	Oil (mg/l)	2	ND	ND	ND
	Phenol (mg/l)	0.2	0.01	ND	0.01
	Copper (mg/l)	0.2	0.02	ND	0.01
	Zinc (mg/l)	2	0.54	0.1	0.33
	Soluble iron (mg/l)	2	0.3	ND	0.1
	Soluble manganese (mg/l)	2	ND	ND	ND
	Chromium (mg/l)	0.2	ND	ND	ND
	Fluorine (mg/l)	2	0.2	ND	0.1
	Colon bacillus (#/cm³)	300	11	0	4
	Total nitrogen (mg/l)	15	11.4	6.5	8.6
	Total phosphorus (mg/l)	2	0.63	0.24	0.41
Nishio Plant	pH	5.8–8.3	7.5	6.1	7
	BOD (mg/l)	10	7.3	0.1	0.8
	COD (mg/l)	10	9.9	1.6	5.7
	SS (mg/l)	10	6.6	0.1	0.9
	Oil (mg/l)	2	ND	ND	ND
	Phenol (mg/l)	0.5	ND	ND	ND
	Copper (mg/l)	0.5	0.03	ND	0.01
	Zinc (mg/l)	1	0.22	0.01	0.11
	Soluble iron (mg/l)	3	0.2	ND	0.04
	Soluble manganese (mg/l)	3	0.3	ND	0.1
	Chromium (mg/l)	0.1	0.02	ND	0.01
	Fluorine (mg/l)	3	1.3	0.1	0.5
	Colon bacillus (#/cm³)	300	107	0	10
	Total nitrogen (mg/l)	15	13.5	4.2	8.5
	Total phosphorus (mg/l)	2	0.66	ND	0.22
	Cyanide (mg/l)	0.05	ND	ND	ND
Takatana Plant	pH	6.5–8.5	8.1	6.8	7.4
	BOD (mg/l)	10	4.7	0.9	2.6
	COD (mg/l)	10	7.6	1.5	4.2
	SS (mg/l)	10	4.2	ND	1.4
	Oil (mg/l)	2	ND	ND	ND
	Phenol (mg/l)	0.2	ND	ND	ND
	Copper (mg/l)	0.2	0.14	ND	0.02
	Zinc (mg/l)	2	0.57	0.15	0.34
	Soluble iron (mg/l)	2	0.2	ND	0.1
	Soluble manganese (mg/l)	2	ND	ND	ND
	Chromium (mg/l)	0.2	ND	ND	ND
	Fluorine (mg/l)	2	0.6	ND	0.1
	Colon bacillus (#/cm³)	300	38	0	4
	Total nitrogen (mg/l)	15	10	3	6.3
	Total phosphorus (mg/l)	2	0.32	ND	0.05
	Cyanide (mg/l)	0.05	ND	ND	ND
Daian Plant	pH	5.8–8.6	7.6	6	6.9
	BOD (mg/l)	10	8.4	ND	2.6
	COD (mg/l)	15	8.1	3.2	5.4
	SS (mg/l)	10	6.6	ND	1.7
	Oil (mg/l)	2	1.8	ND	1.1
	Phenol (mg/l)	0.2	0.03	ND	0.02
	Copper (mg/l)	0.2	ND	ND	ND
	Zinc (mg/l)	2	0.2	ND	0.04
	Soluble iron (mg/l)	2	1	ND	0.2
	Soluble manganese (mg/l)	2	0.1	ND	0.1
	Chromium (mg/l)	0.4	0.02	ND	0.01
	Fluorine (mg/l)	3	2.6	ND	1.4
	Colon bacillus (#/cm³)	300	3	0	0
	Total nitrogen (mg/l)	60	17.5	9	12.3
	Total phosphorus (mg/l)	8	0.23	0.01	0.12
Kota Plant	pH	5.8–8.3	8.2	6.7	7.7
	BOD (mg/l)	10	3	ND	0.9
	COD (mg/l)	10	4.7	1.4	2.8

Plant	Indicator/ Substance*1	Control Value*2	Actual Measurement*3		
			Maximum	Minimum	Average
	SS (mg/l)	10	1.9	ND	1.2
	Oil (mg/l)	1	ND	ND	ND
	Phenol (mg/l)	0.25	0.01	ND	0.01
	Copper (mg/l)	0.5	0.02	ND	0.01
	Zinc (mg/l)	1	0.76	0.01	0.08
	Soluble iron (mg/l)	2.5	ND	ND	ND
	Soluble manganese (mg/l)	2.5	0.1	ND	ND
	Chromium (mg/l)	0.1	ND	ND	ND
	Fluorine (mg/l)	5	2.7	ND	1.1
	Colon bacillus (#/cm³)	300	66	0	6
	Total nitrogen (mg/l)	15	9.6	3.1	5.5
	Total phosphorus (mg/l)	2	0.75	ND	0.21
Toyohashi Plant	pH	6.0–8.5	7.8	6.9	7.4
	BOD (mg/l)	10	2	0.1	0.5
	COD (mg/l)	10	8.4	3	5.5
	SS (mg/l)	10	4.8	0.1	0.6
	Oil (mg/l)	1	ND	ND	ND
	Phenol (mg/l)	0.25	0.01	ND	0.01
	Copper (mg/l)	0.5	0.01	ND	0.01
	Zinc (mg/l)	2.5	0.9	0.01	0.18
	Soluble iron (mg/l)	2.5	0.1	ND	0.04
	Soluble manganese (mg/l)	2.5	0.1	ND	0.02
	Chromium (mg/l)	1	ND	ND	ND
	Fluorine (mg/l)	7	3.7	0.3	1.1
	Colon bacillus (#/cm3)	1,500	190	0	11
	Total nitrogen (mg/l)	15	11.1	4.8	7.9
	Total phosphorus (mg/l)	2	1.38	0.2	0.81
Agui Plant	pH	5.8–8.6	8.2	6.8	7.6
	BOD (mg/l)	12.5	10.5	ND	1.7
	COD (mg/l)	15	8.9	1.3	3.4
	SS (mg/l)	15	2.2	ND	1.2
	Oil (mg/l)	1	ND	ND	ND
	Phenol (mg/l)	0.5	0.01	ND	0.01
	Copper (mg/l)	0.5	0.12	ND	0.02
	Zinc (mg/l)	2.5	0.43	0.02	0.07
	Soluble iron (mg/l)	2.5	0.2	ND	0.1
	Soluble manganese (mg/l)	2.5	ND	ND	ND
	Chromium (mg/l)	1	ND	ND	ND
	Fluorine (mg/l)	7.5	0.2	ND	0.1
	Colon bacillus (#/cm³)	1,500	22	0	4
	Total nitrogen (mg/l)	30	23	4	9.1
	Total phosphorus (mg/l)	3	0.06	ND	0.02
Kitakyushu Plant	pH	5.8–8.6	8.5	6.7	7.6
	BOD (mg/l)	70	6.2	0.9	4
	COD (mg/l)	70	9.5	1.5	3.5
	SS (mg/l)	20	10	ND	3.5
	Oil (mg/l)	2.5	ND	ND	ND
	Zinc (mg/l)	2.5	0.48	0.02	0.12
	Soluble iron (mg/l)	5	0.1	0.01	0.04
Zenmyo Plant	pH	5.8–8.3	8.1	6.9	7.4
	BOD (mg/l)	10	1.5	0.1	0.4
	COD (mg/l)	10	6.6	1.2	3.7
	SS (mg/l)	10	2.5	0.1	0.4
	Oil (mg/l)	1	ND	ND	ND
	Phenol (mg/l)	0.25	ND	ND	ND
	Copper (mg/l)	0.5	0.02	ND	0.01
	Zinc (mg/l)	1	0.45	0.06	0.15

Plant	Indicator/ Substance*1	Control Value*2	Actual Measurement*3		
			Maximum	Minimum	Average
	Soluble iron (mg/l)	2.5	0.4	ND	0.03
	Soluble manganese (mg/l)	2.5	0.2	ND	0.03
	Chromium (mg/l)	0.1	ND	ND	ND
	Fluorine (mg/l)	7.5	0.1	0.1	0.1
	Colon bacillus (#/cm³)	300	21	0	1
	Total nitrogen (mg/l)	10	4	1.5	2.3
	Total phosphorus (mg/l)	1	0.08	ND	0.03
Hiroshima Plant	pH	5.8–8.6	7.7	6.5	7.2
	BOD (mg/l)	15	5.3	2.3	3.8
	COD (mg/l)	15	6.5	0.9	3.1
	SS (mg/l)	15	7.8	ND	2.5
	Oil (mg/l)	2.5	ND	ND	ND
	Phenol (mg/l)	1	ND	ND	ND
	Copper (mg/l)	1	ND	ND	ND
	Zinc (mg/l)	2.5	ND	ND	ND
	Soluble iron (mg/l)	2.5	ND	ND	ND
	Soluble manganese (mg/l)	2.5	ND	ND	ND
	Chromium (mg/l)	1	ND	ND	ND
	Fluorine (mg/l)	7.5	ND	ND	ND
	Colon bacillus (#/cm³)	1,500	150	0	46
	Total nitrogen (mg/l)	60	9.8	1.6	4.4
	Total phosphorus (mg/l)	8	0.7	0.1	0.27
Nukata Testing Center	pH	6.5–8.5	7.6	6.8	7.3
	BOD (mg/l)	12.5	1.7	ND	1.1
	COD (mg/l)	20	4.8	1.3	2.2
	SS (mg/l)	20	15	ND	3.7
	Colon bacillus (#/cm³)	100	31	0	9
	Total nitrogen (mg/l)	1	0.6	0.3	0.4
	Total phosphorus (mg/l)	3	0.08	ND	0.03
DENSO Research Laboratories	pH	5.8–8.6	8.4	6	7
	BOD (mg/l)	12.5	4.5	ND	1.9
	COD (mg/l)	15	10.2	0.6	2.1
	SS (mg/l)	15	2.5	ND	1.2
	Oil (mg/l)	1	ND	ND	ND
	Phenol (mg/l)	0.5	0.01	ND	0.01
	Copper (mg/l)	0.5	0.03	ND	0.01
	Zinc (mg/l)	2.5	0.05	0.01	0.02
	Soluble iron (mg/l)	2.5	0.3	ND	0.1
	Soluble manganese (mg/l)	2.5	ND	ND	ND
	Chromium (mg/l)	1	0.01	ND	ND
	Fluorine (mg/l)	7.5	4.4	0.6	2.2
	Colon bacillus (#/cm³)	1,500	14	0	3
	Total nitrogen (mg/l)	20	10.2	3.4	6.2
	Total phosphorus (mg/l)	3	0.08	ND	0.03

*1 pH: Hydrogen ion concentration
BOD: Biochemical oxygen demand
COD: Chemical oxygen demand
SS: Concentration of suspended solids in water

*2 Control parameters are established by DENSO and are more stringent than those mandated by law.

*3 ND: Not detected (below detection limit)

Air Pollution Data

Plant	Equipment	Substance*1	Control Value	Actual Measurement (maximum) *2
Headquarters and Kariya Plant	Boiler	P.M. (g/Nm³)	0.1	0.026
		NO$_X$ (ppm)	150	57
		SO$_X$ (-) (K value)	1.75	0
	Gas turbine	P.M. (g/Nm³)	0.05	0.002
		NO$_X$ (ppm)	50	17
		SO$_X$ (-) (K value)	1.75	0
Ikeda Plant	Boiler	P.M. (g/Nm³)	0.1	0.014
		NO$_X$ (ppm)	150	72
		SO$_X$ (-) (K value)	1.75	0.04
	Thermal grease remover	P.M. (g/Nm³)	0.2	0.025
		NO$_X$ (ppm)	250	26
		SO$_X$ (-) (K value)	1.75	0
	Boiler	P.M. (g/Nm³)	0.3	0.066
		NO$_X$ (ppm)	230	130
		SO$_X$ (-) (K value)	17.5	0.17
	Melting furnace	P.M. (g/Nm³)	0.2	0.12
		NO$_X$ (ppm)	140	32
		SO$_X$ (-) (K value)	4.67	0.01
Anjo Plant	Incinerator	P.M. (g/Nm³)	0.5	0.076
		NO$_X$ (ppm)	230	75
		SO$_X$ (-) (K value)	17.5	0.01
		HCl (mg/Nm³)	700	65
		Total dioxins (ng-TEQ/Nm³)	80	0.13
	Gas turbine	P.M. (g/Nm³)	0.05	0.003
		NO$_X$ (ppm)	50	41
		SO$_X$ (-) (K value)	17.5	0
Nishio Plant	Boiler	P.M. (g/Nm³)	0.1	0.039
		NO$_X$ (ppm)	230	170
		SO$_X$ (-) (K value)	17.5	3.98
	Melting furnace	P.M. (g/Nm³)	0.4	0.017
		NO$_X$ (ppm)	170	125
		SO$_X$ (-) (K value)	17.5	1.01
	Ash immersion furnace	P.M. (g/Nm³)	0.2	0.0007
		NO$_X$ (ppm)	150	20
		SO$_X$ (-) (K value)	17.5	0
	Gas turbine	P.M. (g/Nm³)	0.05	0.002
		NO$_X$ (ppm)	50	30
		SO$_X$ (-) (K value)	17.5	0
	Annealing furnace	P.M. (g/Nm³)	0.2	0.001
		NO$_X$ (ppm)	140	20
		SO$_X$ (-) (K value)	17.5	0
Takatana Plant	Boiler	P.M. (g/Nm³)	0.1	0.01
		NO$_X$ (ppm)	150	108
		SO$_X$ (-) (K value)	2.92	0.33
	Boiler	P.M. (g/Nm³)	0.25	0.038
		NO$_X$ (ppm)	110	57
		SO$_X$ (-) (K value)	17.5	1.23
	Melting furnace	P.M. (g/Nm³)	0.2	0.034
		NO$_X$ (ppm)	100	36
		SO$_X$ (-) (K value)	17.5	0
Daian Plant	Incinerator	P.M. (g/Nm³)	0.5	0.14
		NO$_X$ (ppm)	250	114
		SO$_X$ (-) (K value)	17.5	2.22
		HCl (mg/Nm³)	700	390
		Total dioxins (ng-TEQ/Nm³)	80	0.062
	Kiln	P.M. (g/Nm³)	0.25	0.081
		NO$_X$ (ppm)	180	123
		SO$_X$ (-) (K value)	17.5	0
		P.M. (g/Nm³)	0.05	0.012
	Gas turbine	NO$_X$ (ppm)	70	49
		SO$_X$ (-) (K value)	17.5	0

Plant	Equipment	Substance*1	Control Value	Actual Measurement (maximum) *2
Kota Plant	Boiler	P.M. (g/Nm³)	0.05	0
		NO$_X$ (ppm)	140	97
		SO$_X$ (-) (K value)	5	0.29
	Gas turbine	P.M. (g/Nm³)	0.04	0
		NO$_X$ (ppm)	50	41
		SO$_X$ (-) (K value)	5	0
Toyohashi Plant	Boiler	P.M. (g/Nm³)	0.15	0.003
		NO$_X$ (ppm)	140	130
		SO$_X$ (-) (K value)	2.34	1.39
	Ash immersion furnace	P.M. (g/Nm³)	0.1	ND
		NO$_X$ (ppm)	100	19
		SO$_X$ (-) (K value)	2.34	0
Agui Plant	Boiler	P.M. (g/Nm³)	0.05	0.002
		NO$_X$ (ppm)	140	74
		SO$_X$ (-) (K value)	1.75	0
	Oven	P.M. (g/Nm³)	0.05	0.002
		NO$_X$ (ppm)	140	68
		SO$_X$ (-) (K value)	1.75	0
Kitakyushu Plant	Boiler	P.M. (g/Nm³)	0.05	0.001
		NO$_X$ (ppm)	120	38
		SO$_X$ (-) (K value)	3.5	0
Zenmyo Plant	Boiler	P.M. (g/Nm³)	0.05	0.034
		NO$_X$ (ppm)	120	100
		SO$_X$ (-) (K value)	3	0.51
	Gas turbine	P.M. (g/Nm³)	0.05	0.003
		NO$_X$ (ppm)	35	30
		SO$_X$ (-) (K value)	3	0
Hiroshima Plant	Boiler	P.M. (g/Nm³)	0.3	0.02
		NO$_X$ (ppm)	250	100
		SO$_X$ (-) (K value)	7	0.02
Nukata Testing Center	Boiler	P.M. (g/Nm³)	0.3	0.114
		NOx (ppm)	140	76
		SO$_X$ (-) (K value)	7	0.34
DENSO Research Laboratories	Boiler	P.M. (g/Nm³)	0.05	0.011
		NO$_X$ (ppm)	120	27
		SO$_X$ (-) (K value)	3	0

Results of Tests for Dioxins

Plant		Unit	Fiscal 1997	Fiscal 1998	Fiscal 1999
Anjo Plant	Measurement Date		12/3	12/18	11/11
	Volume of Dioxins Detected	(ng-TEQ/Nm³)	0.17	0.055	0.13
Daian Plant	Measurement Date		11/28	10/1	10/15
	Volume of Dioxins Detected	(ng-TEQ/Nm³)	0.2	0.036	0.062

* Control: 80 (up to November 2002); 10 (after November 2002)

*1 P.M.: Particulate matter
NO$_X$: Nitrogen oxide
SO$_X$: Sulphur oxide
K value: An index established through local ordinances for limiting the volume of SO$_X$ emissions. K values are lower (more stringent) in regions in which there is concern over the possibility of a high concentration of SO$_X$.

*2 The actual measurements shown refer to maximum values with respect to the control values for each particular piece of target equipment.

N.D.: Not detected (below detection limit)

PRTR Data

Survey targets: 176 substances in the Japanese Environmental Agency's PRTR Pilot Program (unit: tons/year)

Plant	Name of Substance	Volume Handled	Amount Discharged and Transferred				Volume Recycled	Volume Treated*1	Volume Consumed (in Products etc.)
			Discharge into Atmosphere	Discharge into Water	Discharge into Soil	Waste			
Headquarters and Kariya Plant	Xylenes	55.9	3.5	—	—	12.6	—	—	39.8
	Chromium compounds (hexavalent)	0.7	—	—	—	—	—	0.7	—
	Chromium compounds (other than hexavalent)	0.7	—	—	—	0.7	—	—	—
	Cyan compounds	0.4	—	—	—	—	—	0.4	—
	Toluene	65.3	0.4	—	—	—	—	—	64.9
	Nickel compounds	3	—	—	—	0.1	—	—	2.9
	Hydrogen fluoride	4.3	—	—	—	—	—	4.3	—
	Fluorine compounds	0.4	—	—	—	—	—	0.4	—
	Benzene*2	11.4	—	—	—	—	—	—	11.4
	Boron and boron compounds	0.1	—	0.1	—	—	—	—	—
Ikeda Plant	Zinc alloys	0.1	—	—	—	0.1	—	—	—
	Xylenes	8.2	—	—	—	—	—	—	8.2
	Toluene	13.3	—	—	—	—	—	—	13.3
	Benzene*2	2.3	—	—	—	—	—	—	2.3
Anjo Plant	Zinc alloys	1.1	—	—	—	0.3	—	—	0.8
	Xylenes	31.8	13.1	—	—	—	—	—	18.7
	Chromium compounds (hexavalent)	0.2	—	—	—	—	—	0.2	—
	Chromium compounds (other than hexavalent)	0.2	—	—	—	0.2	—	—	—
	Cyan compounds	1.2	—	—	—	—	—	1.2	—
	Styrene	0.4	0.4	—	—	—	—	—	—
	Toluene	40.2	9.7	—	—	—	—	—	30.5
	Fluorine compounds	0.2	0.1	—	—	0.1	—	—	—
	Benzene*2	5.3	—	—	—	—	—	—	5.3
	Formaldehyde	0.2	—	0.2	—	—	—	—	—
	Molybdenum and molybdenum compounds	5.7	—	—	—	5.7	—	—	—
Nishio Plant	Zinc alloys	0.7	—	—	—	0.7	—	—	—
	Xylenes	92.5	53.9	—	—	—	—	—	38.6
	Chromium compounds (hexavalent)	24.4	—	—	—	—	—	23.9	0.5
	Chromium compounds (other than hexavalent)	23.9	—	—	—	23.9	—	—	—
	Oxalic acid	4.6	—	1.6	—	—	—	3	—
	Toluene	70.4	7.5	—	—	—	—	—	62.9
	Benzene*2	11	—	—	—	—	—	—	11
Takatana Plant	Xylenes	57.5	47.6	—	—	—	—	—	9.9
	Chromium compounds (hexavalent)	0.8	—	—	—	—	—	0.8	—
	Chromium compounds (other than hexavalent)	0.8	—	—	—	0.8	—	—	—
	Toluene	57.6	41.5	—	—	—	—	—	16.1
	Benzene*2	2.8	—	—	—	—	—	—	2.8
Daian Plant	Zinc compounds	1.6	—	—	—	1.2	—	—	0.4
	Xylenes	8.4	2.4	—	—	—	—	—	6
	Oxalic acid	3.3	—	3.3	—	—	—	—	—
	Toluene	9.8	—	—	—	—	—	—	9.8
	Lead and lead compounds	20.9	—	—	—	16.7	—	—	4.2
	Nickel compounds	5.9	—	—	—	0.1	—	—	5.8
	Phthalic acid	1.6	1.6	—	—	—	—	—	—
	Bis (2-Ethylhexyl) phthalate	76.1	—	—	—	—	—	76.1	—
	Hydrogen fluoride	1.7	—	—	—	—	—	—	1.7
	Benzene*2	0.3	—	0.3	—	—	—	—	—
Kota Plant	Boron and boron compounds	49.6	46.1	—	—	—	—	—	3.4
	Xylenes	16.7	11.2	—	—	—	—	—	5.6
	Toluene	14.3	—	—	—	—	—	14.3	—
	Hydrogen fluoride	8.1	—	—	—	—	—	8.1	—
	Fluorine compounds	1	—	—	—	—	—	—	1
Toyohashi Plant	Barium and its water soluble compounds	25.6	22.6	—	—	—	—	—	2.9
	Benzene*2	0.7	0.7	—	—	—	—	—	—
	Xylenes	6.6	1.8	—	—	—	—	—	4.8
	Tetrachloroethylene	0.4	—	—	—	0.2	—	—	0.2
	Toluene	0.8	—	—	—	—	—	—	0.8
	Barium and its water-soluble compounds	0.5	—	—	—	—	0.5	—	—
Agui Plant	Benzene*2	0.2	0.2	—	—	—	—	—	—
	Molybdenum and molybdenum compounds	0.3	—	—	—	0.3	—	—	—
	Toluene	0.4	—	—	—	0.4	—	—	—
Kitakyushu Plant	Vanadium and vanadium compounds	—	—	—	—	—	—	—	—
Zenmyo Plant	Boron and boron compounds	—	—	—	—	—	—	—	—
Total		854.2	264.3	5.5	—	64.1	0.5	133.4	386.5

* The Hiroshima Plant, Nukata Testing Center, and DENSO Research Laboratories will begin participation in the PRTR project from fiscal 2001.

*1 Volume treated refers to the on-site treatment of substances targeted by the PRTR. By neutralization, decomposition, or chemical reaction they are turned into substances that fall outside the scope of the PRTR.

*2 Consumption Volume is the amount of substances targeted by the PRTR that is consumed as chemical reaction substances or included in or added to products and removed from facility premises.

*3 Contained in automobile gasoline

ISO 14001 Certification

ISO 14001 Certification at Domestic Plants (Completed March 1999)

Location	Date of Registration	Inspection and Organization
Headquarters and Kariya Plant	November 1998	JARI
Ikeda Plant	October 1996	JET
Anjo Plant	December 1996	JARI
Nishio Plant	December 1997	JET
Takatana Plant	January 1998	JARI
Daian Plant	March 1998	JARI
Kota Plant	October 1997	JET
Toyohashi Plant	November 1997	JARI
Agui Plant	July 1997	JARI
Kitakyushu Plant	December 1997	JARI
Zenmyo Plant	March 1999	JET
Hiroshima Plant	April 1998	JET
Nukata Testing Center	May 1995	JET
DENSO Research Laboratories	January 1998	JET

ISO 14001 CERTIFICATE

JARI: Japan Automobile Research Institute
JET: Japan Electrical Testing Laboratory

ISO 14001 Certification at Domestic Group Companies

Company Name	Date of Registration	Inspecting Organization
Asmo Co., Ltd.	January 1998	JARI
Anden Co., Ltd.	August 1998	JARI
Daishinseiki Co., Ltd.	August 1999	JARI
Kyosandenki Co., Ltd.	November 1999	JARI
GAC Corp.	December 1999	JARI
HamanakoDENSO Co., Ltd.	January 2000	JARI
DENSO TAIYO Co., Ltd.	February 2000	JARI

ISO 14001 Certified DENSO Overseas Facilities

Region	Country	Name of Company	Date of Registration	Inspecting Organization
North America	United States	DENSO Manufacturing Michigan, Inc.	June 1998	DNV
		DENSO Manufacturing Tennessee, Inc.	June 1998	AWM
		Asmo Appalachian Corporation	September 1998	DNV
		Asmo Greenville of North Carolina, Inc.	October 1998	DNV
		Asmo North Carolina, Inc.	November 1998	DNV
		Automotive Motors of Thomasville, Inc.	January 1999	DNV
		DENSO Sales California, Inc.	March 1999	DNV
		American Industrial Manufacturing Services, Inc.	April 1999	UL
		Associated Fuel Pump Systems Corporation	May 1999	DNV
		Michigan Automotive Compressor, Inc.	September 1999	DNV
		Purodenso Company	October 1999	AWM
		Asmo Manufacturing Inc.	November 1999	DNV
		DENSO International America, Inc.	November 1999	DNV
	Mexico	DENSO Mexico S.A. De C.V.	September 1999	DNV
South America	Brazil	DENSO do Brasil Ltda.	January 2000	ABS
Europe	United Kingdom	DENSO Manufacturing UK Ltd.	December 1996	LRQA
		DENSO Marston Ltd.	April 1997	LRQA
	Spain	DENSO Barcelona S.A.	December 1998	LRQA
	Hungary	DENSO Manufacturing Hungary Ltd.	October 1999	LRQA
Oceania	Australia	Australian Automotive Air Pty. Ltd.	December 1997	LRQA
		DENSO Manufacturing Australia Pty. Ltd.	March 1999	QAS
		Flexdrive Industries Limited	June 1999	QAS
Asia	Thailand	DENSO (Thailand) Co., Ltd.	January 1998	TISI
	Taiwan	DENSO Taiwan Corp.	April 1998	UL
	The Philippines	Philippines Auto Components, Inc.	August 1998	AJA EQS
	Indonesia	P.T. DENSO Indonesia Corp.	December 1998	KEMA
	China	Yantai Shougang DENSO Co., Ltd.	April 1999	CCEMS
	Republic of Korea	Poong Sung Precision Co., Ltd.	July 1999	KMA-QA
	Malaysia	DENSO (Malaysia) Sdn. Bhd.	May 2000	SIRIM

DNV: Det Norske Veritas Certification, Inc. AWM: Advanced Waste Management Systems, Incorporated UL: Underwriters Laboratories, Inc. ABS: ABS Quality Evaluations Inc.
LRQA: Lloyds Register Quality Assurance Ltd. QAS: Quality Assurance Services Pty. Ltd. TISI: Thai Industrial Standards Institute KEMA: PT. KEMA Registered Quality Indonesia
CCEMS: China Center for Environmental Management System AJA EQS: Anglo-Japanese-American Environment, Quality, and Safety Ltd. KMA-QA: Korea Management Association Quality Assurance
SIRIM: SIRIM QAS Sdn. Bhd.

●About the DENSO Environmental Symbol Mark

This environmental symbol was developed in July 1995 and is used on pamphlets and during exhibitions and events to promote DENSO's environmental activities.

The design was created by an in-house designer and expresses the idea that the earth has a heart and lives with vitality and vibrancy in harmony with humankind and nature.

DENSO CORPORATION

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