# The Environment

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Development Department 1
Development Headquarters
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The azbil Group promotes a variety of initiatives **in order to contribute to global environmental preservation.** In particular, because we emphasize lessening the environmental impact of our business activities, our target during our new medium-term plan for our "period of growth" is to reduce the volume of **$CO_2$ emissions by 10% or more from the level of fiscal year 2006, ended March 31, 2007, by fiscal year 2013, ending March 31, 2014.**

This section presents the environmental initiatives of the azbil Group.

# Prevention of Global Warming

**The azbil Group has set a target of reducing the volume of $CO_2$ emissions by 10% or more from the level of fiscal year 2006, ended March 31, 2007, by fiscal year 2013, ending March 31, 2014. All employees are working on energy conservation initiatives.**

**Tadashi Hirooka**
Managing Executive Officer
Yamatake Corporation

## Targets Established under Our Medium-Term Plan for the "Period of Growth"

In order to contribute to the prevention of global warming, the azbil Group is working to conserve energy in all its business activities. The target so far has been to reduce the volume of $CO_2$ emissions by 6.2% from the level of fiscal year 2006 by fiscal year 2012, ending March 31, 2013. At the time we were establishing new targets, after factoring in the recent inclusion of Kimmon Manufacturing and its subsidiaries, we gained a basic understanding of how large our domestic volume of $CO_2$ emissions had become. We have therefore set a more ambitious quantitative target of reducing the volume of $CO_2$ emissions by 10% or more from the level of fiscal year 2006 by fiscal year 2013, ending March 31, 2014.

## Results for Fiscal Year 2009, Ended March 31, 2010

Our approach to energy conservation is to look at facilities (air-conditioning, lighting, etc.) and production lines as two separate categories, each of which is divided into an "equipment improvements" list and an "operation improvements" list, for a total of four groups of items. We then prioritize them before we carry out various improvement measures.

This process raises employees' environmental awareness and spreads the sense that we should take initiatives such as turning off unneeded lights, adjusting air-conditioning diligently, and driving in an eco-friendly way. We have found that our recent work-process revision initiative has contributed to reducing lighting hours and the time air-conditioning is on.

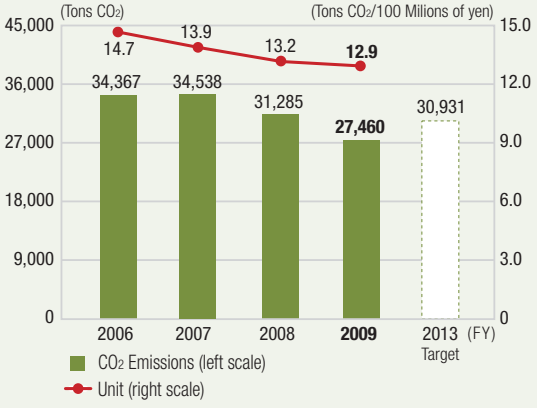
In addition, we experimented with emissions trading between Yamatake and Taishin. As a result of these various measures, the azbil Group reduced the volume of its $CO_2$ emissions by 20% from the level of fiscal year 2006. Further, although decreased production helped to lower emissions, we improved $CO_2$ emissions by 12% on a per sales basis from fiscal year 2006.

## Plan for Future Reductions

To control the increase in $CO_2$ emissions as our earnings grow in the future, we are implementing additional energy conservation measures. For example, we will reduce the volume of $CO_2$ emissions by applying at other Group company factories the expertise gained at Yamatake's Fujisawa Technology Center, which we have developed as a model workplace for energy conservation (see page 39). Further, we will consider expanding our future use of the solar, wind, and other renewable energy sources that we have already begun using on a limited basis.

In addition, in order to prevent global warming we will strengthen our life cycle assessment (LCA) activities in new product development as we seek to consider the entire product life cycle from the design and development stage to procurement, manufacturing, distribution, sale, and disposal.

### $CO_2$ Emissions: Results and Targets




* Scope: Yamatake, Yamatake & Co., Yamatake Control Products, Yamatake Care-Net, Safety Service Center Headquarters, Kimmon Manufacturing and its consolidated subsidiaries in Japan, Yamatake Mizuho, Royal Controls, and Taishin
* Coefficient of $CO_2$ emissions uses a fixed value (0.378 kg $CO_2$/kWh).
* Includes estimates of air-conditioning energy and other figures.

# Initiatives at the Fujisawa Technology Center


Yamatake's Fujisawa Technology Center

Fujisawa Technology Center
Yamatake Corporation

**A variety of energy conservation efforts are underway at the azbil Group's "model workplace for energy conservation," which is also its largest employment site, with about 2,000 people.**

## Q What kind of operating principles do you follow at the Fujisawa Technology Center?

We began full-fledged energy conservation efforts in 1999 with the installation of an energy monitoring system.

In addition to promoting energy conservation, we stress the concepts of *measurement*, *examination,* and *control*. Our current analysis starts with *measurement* of the amount of energy such as electricity and gas. This allows us to understand the actual consumption situation in a building so that we can then *examine* factors such as machinery performance, operating efficiency, and operating times. We then create improvement plans. This leads to accurate and effective energy conservation measures, and to *control* of energy consumption.

Since the second half of 2008, we have further strengthened our execution framework by assigning, on every floor of every building, someone in charge of energy conservation, as well as an energy conservation promoter, which has contributed to the continuation of our initiatives.

## Q Please tell us about energy conservation measures you have put in place so far.

We have taken a wide range of energy conservation measures in keeping with the characteristics of each building, based on sources ranging from employee suggestions to advanced technologies.

In buildings that existed before we began our initiatives, we installed highly efficient reflectors and inverter voltage stabilizers in the lighting. We also installed pull switches to ensure that individual lights could be turned off when not needed. We increased the efficiency of our air-conditioning by switching to double-pane windows, by installing reed screens around external air-conditioning equipment, and by using ceiling fans.

Buildings completed in 2006 employ highly insulative glass on all surfaces, have vertical louvers on sides that face the setting sun, and employ air-conditioning systems that use less power for heat conveyance. We have also improved the operation of new buildings since their completion through means including shortening the operating times of heat sources used in air-conditioning of central monitoring equipment and energy management systems.

Note: We demonstrate some of the energy conservation technologies and expertise gained through measures taken at the Fujisawa Technology Center so far in our Factory Energy Conservation Tour.

For tour information, please refer to ▶http://jp.yamatake.com/csr/factorytour/ (in Japanese)

# Material Balance

The azbil Group strives for preservation of the environment in all phases of the product life cycle, from development and design to use, disposal, and recycling. We undertake quantitative analysis of the environmental impact of our business activities and adopt measures to reduce it.

## Summary of Environmental Performance Data (Fiscal Year 2009, Ended March 31, 2010)

### INPUT

| | | | | | |
|---|---|---|---|---|---|
| Electricity | 36.8 million kWh | LNG | 233,000 $m^3$ | Paper | 16.9 million sheets |
| Kerosene | 56.5 kl | Gasoline | 126.8 kl | | |
| LPG | 689,000 $m^3$ | Water | 127,000 $m^3$ | | |

Scope: Yamatake's research and development and production bases, Yamatake Control Products, Kimmon Manufacturing's research and development and production bases, Aomori Manufacturing, Wakayama Seiki, Shirakawa Seiki, Yamatake Mizuho, and Taishin

**Development, Design**
- Environment-Conscious Design
- Chemical Substance Control

**Procurement**
- Green Procurement

**Production**
- Global-Warming Countermeasures
- Resource Conservation and Waste Reduction
- Environmental Pollution Prevention

### OUTPUT

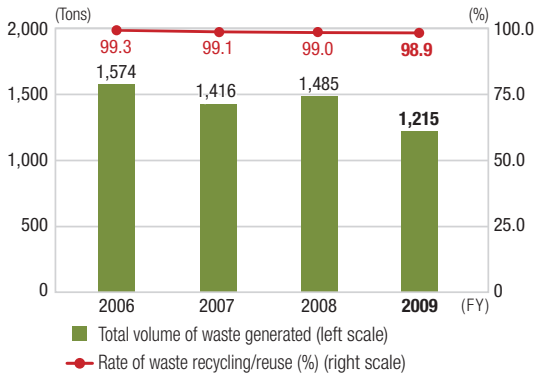
| | | | |
|---|---|---|---|
| $CO_2$ Emissions | 19,915.1 tons | Chemical Substance Airborne Emissions | 56.7 tons |
| SOx Emissions | 17.0 tons | Total Discharge of Waste | 1,501.1 tons |
| NOx Emissions | 13.2 tons | | |

# Eco Factories and Eco Offices

## Reducing Waste

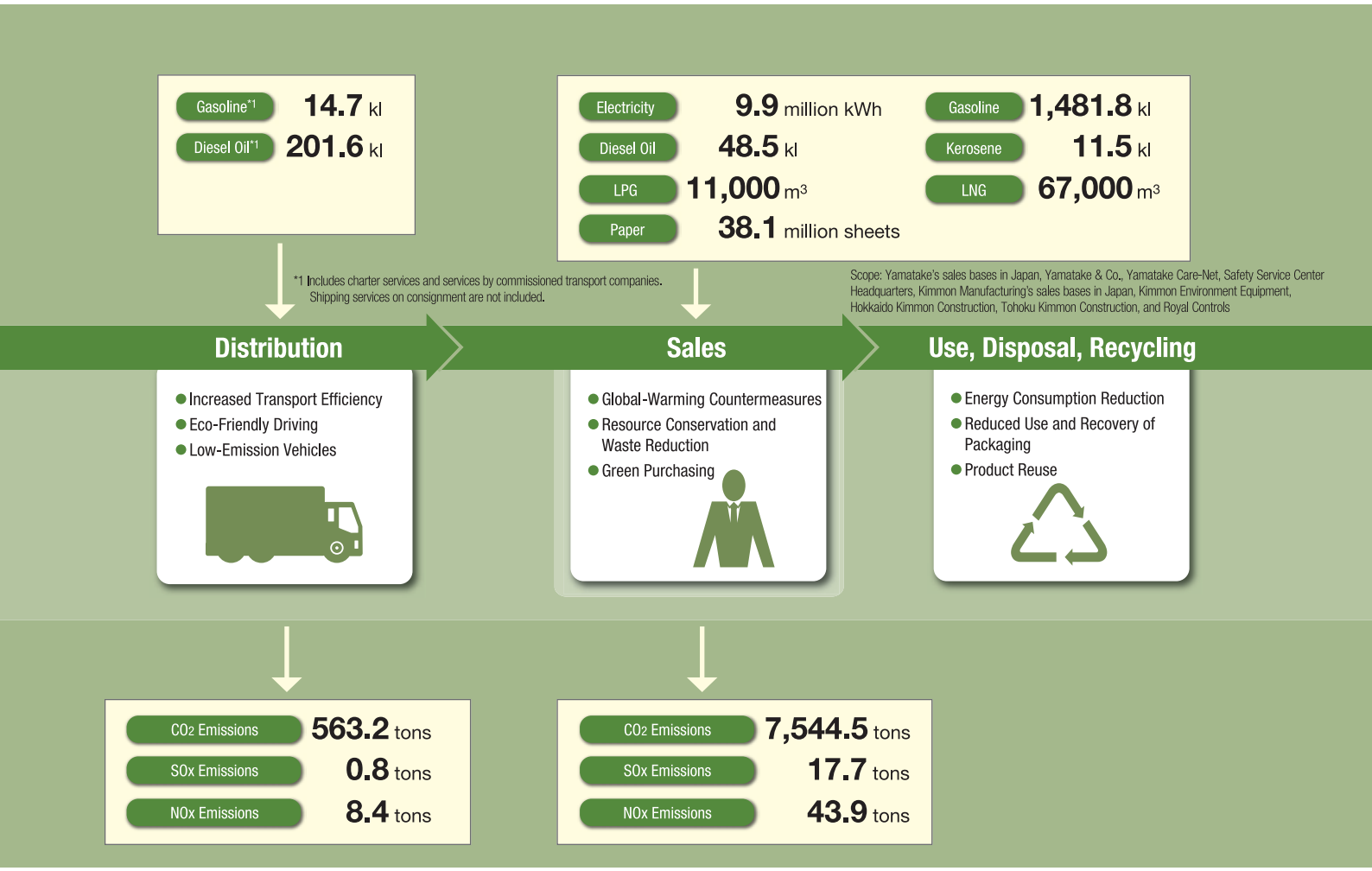
Waste generated at our factories and offices is carefully sorted by material and type. We are currently rethinking the way we collect waste, while continuing to educate our employees thoroughly in waste separation methods to ensure that all resources are reused and recycled. Partly due to a decrease in production, the total discharge of waste has substantially decreased.

Waste Disposal and Rate of Recycling




*Scope: Yamatake's Fujisawa Technology Center, Shonan and Isehara factories, Yamatake Control Products, Yamatake Mizuho, and Taishin

*Total volume of waste generated is the total for industrial waste plus general waste (including material with value).




## Reducing Paper Use

We are working to reduce the use of paper resources by applying IT in our general operations. Initiatives such as using electronic bulletin boards to share information and switching to e-forms are underway. In fiscal year 2009, ended March 31, 2010, in order to understand, analyze, and reduce the volume of paper, we introduced combination printer-copier-scanner-fax machines that make usage data more visible. Yamatake reduced the volume of paper used by 21% from the level in fiscal year 2006, ended March 31, 2007, exceeding our target of 15%.

## Environmental Regulation Compliance

In fiscal year 2009, the azbil Group did not violate any laws, was not penalized or fined, and was not subject to any litigation or complaints concerning environmental matters.

For general information on Eco Factories and Eco Offices, please refer to

▶ http://www.azbil.com/csr/eco/eo/

# Environmental Objectives, Targets, and Results

The azbil Group is actively taking measures to achieve its goal of minimizing the impact placed on the environment by its business activities. These include measures to conserve energy and resources, prevent pollution, and manage chemical substances.

## Yamatake's Environmental Objectives, Targets, and Results

| | Objectives | Targets for Fiscal Year 2009 |
|---|---|---|
| Eco Factories, Eco Offices | ● By fiscal year 2013, reduce total volume of $CO_2$ emissions by 10% or more compared to fiscal year 2006 through thoroughgoing energy conservation (fiscal year 2006 total volume: 21,685 tons of $CO_2$*1) | ● Reduce by 6.0% compared to fiscal year 2006 to a total volume of 20,384 tons of $CO_2$<br>● Compliance with the Revised Act on the Rational Use of Energy |
| | ● By fiscal year 2012, reduce total amount of purchased copier-use paper by 30% compared to fiscal year 2006 through operational improvements (fiscal year 2006 total volume: 56.58 million sheets) | ● Reduce by 15% or more compared to fiscal year 2006 |
| | ● Compliance with environmental laws and regulations and other agreed-upon requirements<br>● Completely discontinue use of dichloromethane*2<br>● Compliance with revised PRTR Law*3 | ● No incidents of noncompliance<br>● Completely discontinue use of dichloromethane at Shonan factory's control valve upgrade area<br>● Introduce material safety data sheets (MSDS) and survey pertinent chemical substances |
| Eco Products, Eco Services | ● Promote environmentally friendly design technologies and compliance with regulation of chemical substances used in products<br>● Contribute to reducing product $CO_2$ emissions through promotion of environmentally friendly design technologies | ● Ratio of eco products among new products: 90% or above<br>● LCA*4 implementation rate: 15% or above<br>● Upgrade promotion of LCA |
| | | ● Operate aG-CMS*5 Promotion Committee<br>● Respond to top-priority CMS management issues (procurement framework, survey of chemical substances used in products, etc.) |
| | ● Green procurement | ● Green procurement rate: maintain at 95%<br>● Educate and provide guidance for partner companies |
| Eco Communication | ● Raise environmental awareness<br>・ Education for employees and their families, and education through interaction with local communities<br>・ Work for biodiversity | ● Cleaning activities in areas close to office and plants<br>● Participate in various environmental events<br>● Cooperate with NGOs and NPOs<br>● Hold environment education programs for families of employees |

*1 Covers Yamatake, Yamatake Control Products, Yamatake Mizuho, and Taishin *2 Excluding certain specialty products.
*3 PRTR Law: The Pollutant Release and Transfer Register Law *4 LCA = Life Cycle Assessment *5 aG-CMS = The azbil Group's Chemical-substances Management Systems
*6 YEP = Yamatake Eco Program. Based on the Ministry of the Environment's EcoAction 21 program, provides support unique to Yamatake to partner companies' environmental preservation initiatives.

| Results for Fiscal Year 2009 | Targets for Fiscal Year 2010 | Medium-Term Targets |
|---|---|---|
| ● Reduced by 21.0% compared to fiscal year 2006 Total volume: 17,146 tons of $CO_2$<br>● Constructed systems for improvement of air-conditioning energy use and other data and regulatory compliance | ● Continue reduction efforts from fiscal year 2009 toward medium-term targets<br>● Compliance with the Revised Act on the Rational Use of Energy and ordinances of Kanagawa Prefecture | ● By fiscal year 2013, reduce by 10% or more compared to fiscal year 2006 to a total volume of 19,517 tons of $CO_2$ or less |
| ● Reduce by 21% compared to fiscal year 2006 Total volume: 44.81 million sheets | ● Continue reduction efforts from fiscal year 2009 toward medium-term targets | ● By fiscal year 2012, reduce by 30% compared to fiscal year 2006 |
| ● No incidents of noncompliance | ● No incidents of noncompliance | Continue previous targets |
| ● Unable to completely discontinue use, but there were no new purchases | ● Confirm dichloromethane discontinuation status | — |
| ● Surveying pertinent chemical substances | ● Continue survey of chemical substances | — |
| ● Held section meetings led by development departments to promote environmentally friendly design<br>● Ratio of eco products among new products: 100%<br>● LCA implementation rate: 20% | ● LCA implementation rate for new products: 100%<br>● Continue implementing LCA for existing products<br>● Upgrade promotion of LCA | ● LCA implementation rate for new products: 100%<br>● LCA implementation rate for existing products: 100%<br>● Upgrade promotion of LCA |
| ● Operated aG-CMS Promotion Committee<br>● Implemented survey of chemical substances used in products, etc.<br>● Implemented responses to EU REACH regulations | ● Operate aG-CMS Promotion Committee<br>● Implement survey of chemical substances used in products<br>● Implement responses to EU REACH regulations | Continue previous targets |
| ● Green procurement rate: 95.4% through YEP*6 initiatives | ● Green procurement rate: 95% | Continue previous targets |
| ● Implemented initiatives as planned, including support for Shonan International Marathon and Earth Day Tokyo | ● Support certification under Eco-Test<br>● Hold environment education programs for families of employees<br>● Promote the Ministry of the Environment's EcoFamily program<br>● Consider biodiversity (beach cleaning, *satoyama*, etc.) | Continue previous targets |

# Eco Management

The azbil Group is working to continuously reduce or prevent the environmental burdens and risks associated with its business activities through the Groupwide environmental management promotion framework.

For general information on Eco Management, please refer to ▶http://www.azbil.com/csr/eco/em/

## Environmental Management Promotion Framework

In the azbil Group, environmental issues and management plans are promoted and reviewed by the azbil Group Environmental Management Committee, led by the Environmental Management Officer, while at Yamatake Corporation these matters are handled by the Environment Committee, composed of the Environmental Management Officer (chairman) and business office managers, among others. In addition, a framework has been established for determining $CO_2$ reduction targets for Yamatake's large-scale workplaces by designating executive directors and officers responsible for each building, area, or department starting in the second half of fiscal year 2008, ended March 31, 2009. This contributed to the achievement of the targets for fiscal year 2009, ended March 31, 2010.

## ISO 14001 Certification

In August 1996, Yamatake became the first company in the control instrument industry in Japan to obtain ISO 14001 certification, and since then the azbil Group has steadily continued to acquire certification for its various locations in Japan and overseas. In fiscal year 2009, ended March 31, 2010, Shanghai Azbil Automation Co., Ltd. and PT. Azbil Berca Indonesia were newly certified.

### ISO 14001 Certification History

| | | |
|---|---|---|
| Aug. | 1996 | Yamatake Corporation |
| Sept. | 1997 | Yamatake Control Products Co., Ltd. |
| July | 2000 | Taishin Co., Ltd. |
| Feb. | 2002 | Azbil Control Instruments (Dalian) Co., Ltd. |
| Dec. | 2004 | Yamatake & Co., Ltd. |
| June | 2006 | Azbil Korea Co., Ltd. |
| July | 2007 | Azbil Hong Kong Limited |
| June | 2008 | Azbil Singapore Pte. Ltd. |
| Sept. | 2008 | Royal Controls Co., Ltd. |
| Dec. | 2009 | Shanghai Azbil Automation Co., Ltd. |
| Dec. | 2009 | PT. Azbil Berca Indonesia |

## Introducing Our "$CO_2$ Management System," a Response to the Revised Act on the Rational Use of Energy and Other Regulations

Companies have an obligation to comply with increasingly strict environmental laws and regulations, such as the Revised Act on the Rational Use of Energy, and to disclose information pertinent to the environment.

Yamatake has been continuously using an environmental management tool to collect and manage various types of environmental performance data since 2005. However, it was difficult to respond to all the regulations using this tool because submission standards and emission factors vary greatly in different regulations. We therefore introduced the "$CO_2$ Management System" (hereafter $CO_2$MS), which we developed ourselves, in fiscal year 2009 for accurate and efficient compliance with the Revised Act on the Rational Use of Energy and other regulations.

The environmental and marketing departments have exchanged information on the development of $CO_2$MS since the planning stage, and the environmental department then put it to actual use. This helped department members to accumulate expertise in revising system functions and operational support. We were also able to recognize and improve on issues relating to compliance with the Revised Act on the Rational Use of Energy such as the new requirement to gather and manage information on energy consumption by air-conditioning in rented portions of buildings, and in the extent to which management is necessary.

This is an example of effectively using $CO_2$MS, which is able to respond to constantly changing laws and regulations, in conjunction with existing management tools.

Discussing company issues in front of a $CO_2$MS screen

# Eco Products and Eco Services

Based on environmental design guidelines formulated by Yamatake in 1997, we actively promote the development of products, services, and solutions that are environmentally friendly from the development stage to the end of their life cycle.

For general information on eco products and eco services, including chemical substance management and green procurement, please refer to ▶http://www.azbil.com/csr/eco/es/

## Unique azbil Product that Contributes to the Environment: the ACTIVAL™ PLUS Motorized Control Valve with Flow Measurement and Control Functions

The azbil Group released ACTIVAL PLUS in 2009. Because this valve contains an integrated flow measurement function, it is able to conserve energy by controlling the flow rate to prevent excess flow, without the need to add other equipment such as flowmeters or heat sensors. It further improves the quality of energy management by enabling precise knowledge of the energy consumption by individual air conditioning units.

We have installed 100 ACTIVAL PLUS valves at Yamatake's Fujisawa Technology Center, and as a result we have seen a 7% reduction in the power required for fluid conveyance.

ACTIVAL PLUS installed

ACTIVAL PLUS

### Commitment to Development

Flow is measured using differential pressure flowmeters based on pressure differences caused by valves, and on the valves' inherent flow coefficient (Cv). Many factors figure in development because the flow environment of our valves differs substantially from a typically measured flow environment.

For example, if valves are installed at the end of curved pipes, the pressure at the inlet is irregular. By making ports to regulate this pressure, we have succeeded in reducing the margin of error in calculating pressure from 6.5% to 1% or less.

In addition, substantial changes at the outlet occur within valves as they open and shut, which impacts pressure measurement. By careful design of the valve body configuration, reliable pressure measurement can be achieved by creating new areas that are unaffected by flow.

Regarding the Cv, we have recently gathered an enormous amount of data from over a year of experiments. Based on this data we can confirm the accuracy of flow measurement through various methods, such as creating two-dimensional Cv tables for any degree of valve opening and for any differential pressure.

After environmental assessment, ACTIVAL PLUS was certified as an environmentally friendly product, and was permitted to display the azbil Group Type II Environmental Label.

## Initiatives for Unique Added Value

The idea of measuring flow with valves is not new in and of itself, but previously there were almost no commercial products. In the course of development for this product, we incorporated numerous new technologies, ideas, and production methods, and applied for numerous patents. In this way we have succeeded in developing a product with added value that competitors cannot replicate.

In addition, by selecting development project members from many departments, we believe we have created a newly expanded range of communication, which will be a positive factor in future product development.

This product is part of a series. As we successively build a lineup of products with flow measurement functions to meet HVAC needs, we will contribute to realizing a low-carbon society through environmentally friendly design.

**Motohiro Furuya**
Development Department 2
Development Headquarters
Building Systems Company
Yamatake Corporation

**Keita Sato**
Product Marketing Department
Marketing Headquarters
Building Systems Company
Yamatake Corporation

# Environmental Communication

The azbil Group aims to raise each employee's environmental awareness in order to achieve a sustainable society. We place importance on environment-related communication inside and outside the Group, including not only our internal environmental education, but also support for voluntary environmental study, for the environment-conscious lifestyles of our employees and their families, and for our environmental awareness initiatives for local communities.

For general information on Environmental Communication, please refer to ▶http://www.azbil.com/csr/eco/ec/

## Environmental Awareness Initiatives for Employees

### Promoting Eco-Test Study and Certification

To raise each employee's environmental awareness, the azbil Group recommends studying for and passing the Certification Test for Environmental Specialists (the Eco-Test).

Interested employees have been voluntarily obtaining this certification since it became available in 2006. In fiscal year 2009, judging that the scope of the certification was suitable for the systematic study of global environmental problems, Yamatake included it in its incentive system for self-improvement. This has made the Eco-Test more effective as a method by which employees can raise their environmental awareness.

### "Eco-People" Round Table

We believe that applying knowledge acquired through study to both work and life furthers global environmental preservation initiatives in all sectors: industrial, residential, and commercial.

We also believe the process should not end with simply obtaining a certification, but should lead to communication about environmental issues, which will maximize the results. We therefore held, for the first time early in 2010, a round table discussion with 13 volunteers who passed the Eco-Test (called "Eco-People"). The round table mainly consisted of exchange of information on the usefulness of obtaining Eco-certification for people's work, as well as study methods and environment-conscious lifestyles.

Because participants varied in their departments and jobs, there was some nervousness at first. However, people gradually came to feel that they could speak freely, as reflected by their smiles in the group photo on the cover of azbil Group Internal Magazine for June 2010.

Round table discussion

Advantages and new initiatives resulting from mastery of the Eco-Test material are as follows.

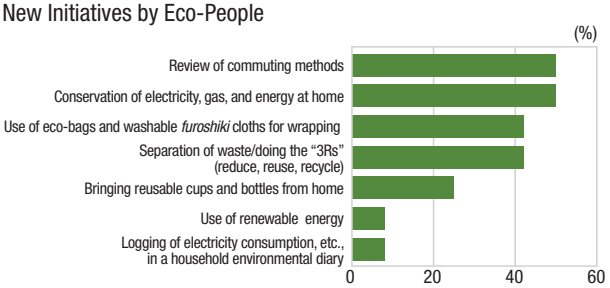
### ▶ On the Job

- Proposals made by eco-certified employees are more persuasive because they are made with an understanding of the background of environmental problems and the processes connected with environmental legislation.
- The level of communication with customers has improved.
- The Eco-People are able to give clear directions and explanations regarding methods of waste treatment and disposal in the workplace.
- Understanding environment-related news and documentation has become easier.

### ▶ In Life

When participants in the round table discussion were asked how study for the Eco-Test made them more environmentally conscious in their everyday lives, it was found that many of them had reconsidered their commuting methods and were saving more energy at home. Thus the test's effects extend also to greater environmental consciousness among family members.

New Initiatives by Eco-People




### ▶ Other

- Improving thermal insulation at home
- Starting a garden or planter garden
- Environmentally friendly cooking

The above activities are closely related to daily life. To succeed with them, the key is that everyone has fun doing them.

Before the round table, nobody knew which employees were Eco-People. It was a private certification. Afterwards, however, the opportunity for greater effectiveness arose through the newly formed interdepartmental connections with other Eco-People.

By raising each employee's environmental awareness, the Eco-People hope to increase the number of employees working to apply environmental knowledge in their jobs, working as eco-leaders in the workplace and obtaining more specialized environmental knowledge. We believe this will strengthen Yamatake as a company. Thus, the azbil Group will continue to promote Eco-Test study and certification.