

THK CSR Report 2014/2015



Introduction

From the very start, the THK Group (usually referred to in these pages simply as THK) has been mindful of the importance of conducting its business operations in a manner that yields benefits for society as a whole.

This year's *CSR Report* includes a feature section examining THK's efforts to honor its corporate social responsibilities in two key areas. The first part looks at ways in which THK technology is being put to use in the fields of medical care and healthcare to help meet the needs of Japan's rapidly aging population. The second part focuses on initiatives underway at THK to enable greater use of renewable energy as a countermeasure against global warming.

The section entitled "Management system" includes a discussion of risk management efforts, while "Involvement in society" focuses on THK's relationships with its various stakeholders. "Harmony with the environment" offers a look at THK's environmental initiatives in fiscal 2013, including some quantitative results.

The *THK CSR Report* is an essential tool for communicating with everyone who is connected in any way to THK and its activities. Please take the time to fill out the enclosed questionnaire—your comments and feedback will be greatly appreciated.



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Reporting period

This report focuses mainly on the period from April 1, 2013, through March 31, 2014, although developments occurring shortly before and after this period are also discussed. For the most part, years cited in this report are fiscal years.

Scope

This report is based on information provided by THK Co., Ltd., and its consolidated subsidiaries and affiliates. The full scope of the data reported in the section entitled "Harmony with the environment," apart from that presented in the subsections "Environmental impact: The big picture" and "Environmental preservation: Costs," encompasses THK's five manufacturing plants in Japan, in YAMAGATA, KOFU, GIFU, MIE, and YAMAGUCHI; THK NIIGATA Co., Ltd.; and two manufacturing plants owned by THK INTECHS Co., LTD., in SENDAI and MISHIMA.

Target readership

This report is addressed to a broad range of stakeholders, including THK's customers, shareholders, investors, partner businesses (including subcontractors and suppliers), and employees, as well as government administrators and community residents.

Reference

Reference information used in the preparation of this report has been drawn from the Global Reporting Initiative "G4 Sustainability Reporting Guidelines" (2013) and the Ministry of the Environment's "Environmental Reporting Guidelines" (2013).

Please direct inquiries to:

THK Risk Management Division
Phone: +81-3-5434-0569
Fax: +81-3-5434-0315

Message from the Top

THK continues to contribute to society

A look back at 2013

In 2013 economic growth in emerging nations tailed off amid expectations of a tighter monetary policy in the United States, but monetary conditions actually continued to ease. As a result, moderate recovery was observed in the United States, Japan, and the countries of Europe, and the global economy held to a steady course.

THK has continued to strive to expand its markets by pursuing a two-pronged strategy for growth focusing on full-scale globalization and the development of new areas of business. To this end, we're establishing a unified sales system that's accessible at the point of consumption, to enable us to meet the customer's need more quickly.

We have expanded our sales networks in Southeast Asia and India, two regions where demand is expected to increase over the mid- to long term. In preparation for increased automobile manufacturing in Latin America, we have commenced operations at a new factory at THK RHYTHM MEXICANA. To prepare for increased demand in China and Southeast Asia, we are relocating and expanding facilities at DALIAN THK in China, with the intention of commencing operations under new arrangements in December 2014. We are also building a new factory in Changzhou, which is expected to commence operations in October 2015.

Contributing through our products

Providing innovative products to the world and generating new trends to contribute to the creation of an affluent society—this has been THK's corporate philosophy from the very beginning.

THK linear motion systems are not only used in mechanical devices. They are also employed in a vast array of other applications that are crucially important to society as a whole. Among other things, THK technology plays a vital role in protecting people from harm and enabling effective medical treatment and nursing care. For this reason, I firmly believe we can honor our corporate social responsibilities through the continued expansion and development of our core business pursuits.

In the aftermath of the Great East Japan Earthquake, heightened awareness of the need for disaster-prevention measures led to a surge in demand for THK seismic isolation and damping devices. THK technology is now used to seismically isolate and protect not only private homes and office buildings but also cultural assets and works of art, as well as dialysis machines and other essential medical equipment.

THK is shifting to greater use of renewable energy sources in order to reduce CO₂ emissions. At the same time, THK products are being used in wind-powered and small-scale hydroelectric power generating systems, some of them developed by THK itself.

THK technology is also used in various types of medical and nursing-care devices and equipment, which will become increasingly important to Japan's rapidly aging society. In years to come we anticipate expanded use of THK products in the field of robotics as well, not merely in industrial robots but also in humanoid robots developed for use by the general public.



Akihiro Teramachi

President and CEO
THK CO., LTD.

寺岡 彰 博

Spreading the word about THK products

THK contributes to the welfare of society by producing key components suitable for a broad range of linear-motion and rotary-motion applications in machines and devices. As the market becomes increasingly globalized, however, information from THK is not adequately reaching our customers, nor are all of our customers' concerns being adequately conveyed to THK.

As a creative, development-oriented corporation and a pioneer in the creation of linear motion systems, THK has become a world leader in development capability and product quality. I feel it's essential to make the best possible use of our strengths by improving our customers' mechanical systems, because, by doing so, we can make our customers' products vastly more competitive. We're planning to set up sales offices all over the world, put more emphasis on communications and public-relations efforts, and make sure we hear all the available input from our customers first-hand, to ensure that we're meeting their expectations.

Wherever you go, people basically want the same thing: a better product at the right price, at the right time and place, and in the right quantity. We need to remind ourselves that, by humbly attending to the customer's concerns and fully responding to them, we're striving to exemplify *omotenashi*, the traditional Japanese spirit of conscientious service and hospitality.

In closing

THK has established a set of basic policies devoted to the pursuit of business activities that create value and contribute to society, that are customer-oriented, and that adhere to all relevant laws and regulations.

Our intention is to identify needs in potential markets and develop ingenious new products to meet those needs, as well as to provide satisfactory solutions to the challenges facing our existing customers, so that we can grow along with them. In all our business pursuits, we faithfully abide by the laws and ethical standards of Japan and every other country, engage in fair business practices, and endeavor to contribute to society while engaging in fair competition.

We will keep working to develop closer relationships with our customers, partner businesses, and shareholders, as well as with the communities where THK does business. We will continue to help preserve the natural environment and disclose essential information in a fair and timely manner, in keeping with our responsibilities as a good corporate citizen.

Once again, our annual *CSR Report* is filled with interesting details illustrating ways in which THK honors its social responsibilities through its principal business pursuits, in accordance with our basic policies. Thank you for your interest—I hope you find this report enlightening.

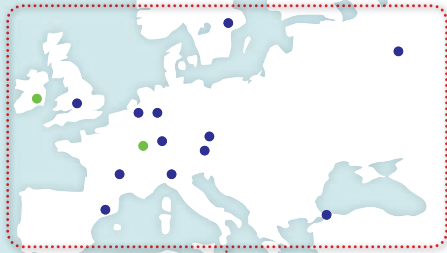
The THK Group

THK, the pioneering firm that developed the world's first Linear Motion Guide, is the world's foremost manufacturer of machine elements and components. As a creative, development-oriented enterprise, THK has introduced a broad range of products since its establishment in 1971, guided by a corporate philosophy devoted to providing innovative products to the world and generating new trends to contribute to the creation of an affluent society. In a host of mechanical systems including machine tools, industrial robots, and semiconductor production equipment, THK's LM Guides and other products serve as essential labor-saving components

enabling greater speed and precision. As such, they have contributed to advances in many industries. The constantly expanding applications for THK products now include CT scanners, MRI machines, and other devices used in advanced medical care; more durable and environmentally compatible automobiles and railway cars; and seismic isolation and damping devices that protect lives and safeguard valuable property.

As a milestone for long-term growth, THK has set a goal of achieving consolidated sales of ¥300 billion. To attain this goal, THK has embraced a two-pronged strategy aimed at full-scale globalization and the develop-

THK's global network



Europe

Sales offices

Germany	2	France	1
Britain	1	Netherlands	1
Italy	1	Turkey	1
Sweden	1	Russia	1
Austria	1	Czech Republic	1
Spain	1		

Production sites

Ireland	1	France	1
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THK Group companies

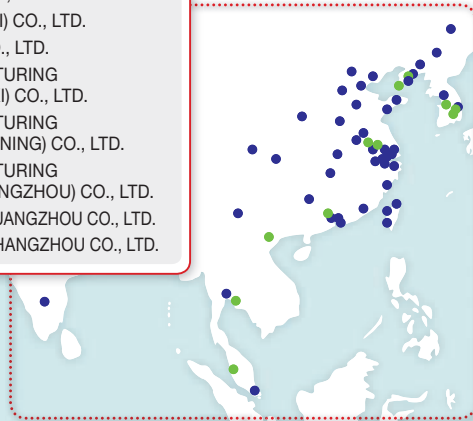
- THK Europe B.V.
- THK GmbH
- THK France S. A. S.
- THK Manufacturing of Europe S. A. S.
- THK Manufacturing of Ireland Ltd.

China

Sales offices	35
Production sites	5
Development facilities	1

THK Group companies

- THK (CHINA) CO., LTD.
- THK (SHANGHAI) CO., LTD.
- DALIAN THK CO., LTD.
- THK MANUFACTURING OF CHINA (WUXI) CO., LTD.
- THK MANUFACTURING OF CHINA (LIAONING) CO., LTD.
- THK MANUFACTURING OF CHINA (CHANGZHOU) CO., LTD.
- THK RHYTHM GUANGZHOU CO., LTD.
- THK RHYTHM CHANGZHOU CO., LTD.



Elsewhere in Asia

Sales offices

Taiwan	3	India	1
Singapore	1	South Korea	13
Thailand	1		

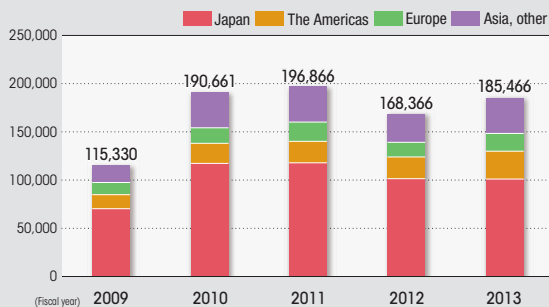
Production sites

South Korea	3	Vietnam	1
Thailand	1	Malaysia	1

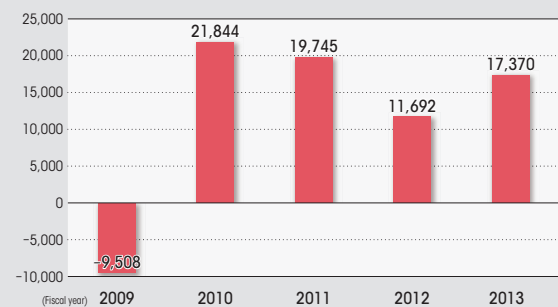
THK Group companies

- THK TAIWAN CO., LTD.
- Beldex KOREA Corporation
- THK LM SYSTEM Pte. Ltd.
- THK RHYTHM (THAILAND) CO., LTD.
- THK MANUFACTURING OF VIETNAM CO., LTD.
- THK RHYTHM MALAYSIA Sdn. Bhd.
- THK India Private Limited
- SAMICK THK CO., LTD.

Net sales, consolidated (¥ million)



Operating income, consolidated (¥ million)



ment of new areas of business, in order to both increase its geographical presence and expand the range of applications for THK products. The globalization initiative, based on the idea that the site of demand is the optimal site for production, is devoted to establishing and improving a unified production and sales system in THK's four principal territories: Japan, the Americas, Europe, and the rest of Asia. The development of new areas of business is an effort to aggressively expand the range of product applications into areas of direct interest to consumers, including automobiles and housing.

Corporate name THK CO., LTD.
 Date established April 10, 1971
 Address 3-11-6 Nishi-Gotanda, Shinagawa-ku
 Tokyo, Japan 141-8503
 Capital ¥34,606 million*
 End of fiscal year March
 Employees, consolidated 9,177*
 Employees, non-consolidated 3,372*
 Consolidated subsidiaries 7 in Japan; 26 overseas*
 *As of March 31, 2014

The Americas

Sales offices

USA	7	Brazil	1
Canada	1		

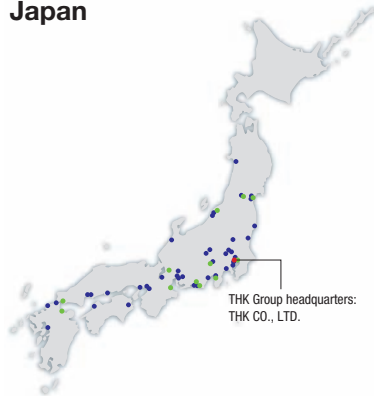
Production sites

USA	2	Mexico	1
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THK Group companies

- THK Holdings of America, L.L.C.
- THK America, Inc.
- THK Manufacturing of America, Inc.
- THK RHYTHM NORTH AMERICA CO., LTD.
- THK RHYTHM MEXICANA, S.A. DE C.V.
- THK RHYTHM MEXICANA ENGINEERING, S.A. DE C.V.
- THK Brasil LTDA

Japan



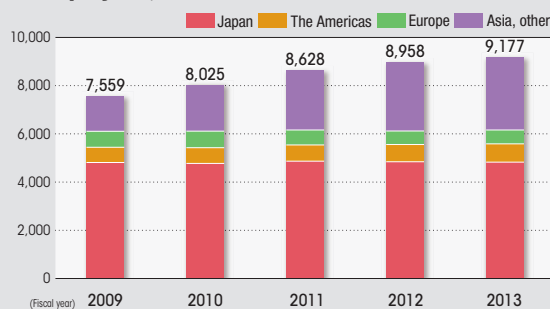
Sales offices	45
Production sites	12
Development facilities	1
Distribution sites	3

THK Group companies

- THK INTECHS CO., LTD.
- TALK SYSTEM CORPORATION
- THK NIIGATA CO., LTD.
- THK RHYTHM CO., LTD.
- THK RHYTHM KYUSHU CO., LTD.
- L Trading Co., Ltd.
- NIPPON SLIDE CO., LTD.

● Sales office ● Production site

Employees, consolidated



THK personnel, non-consolidated (as of March 31, 2014)

Status	Number	Average age	Average years of service
Employees, male	2,888	39.5	17.3
Employees, female	484	33.7	12.9
Employees, total	3,372	38.7	16.7
Corporate officers	20		
Advisers	3		
Part-time employees	4		
Personnel from affiliates	170		
Temporary personnel	2		



Product used:
THK **Seed Solution**.



Product used:
the model UGR Utility Slide,
a type of linear guide.



Product used:
THK's syringe unit.

Enabling rapid progress in medicine and healthcare

THK products are widely used in devices employed in the fields of medicine and healthcare. This section presents testimonials by a number of customers who have successfully adopted THK products, including **Seed Solutions**, LM Guides, and syringe units.

The devices discussed in these pages represent just a few of the product lines THK offers. THK welcomes inquiries from all parties interested in using THK technology to meet their own needs.

In their own words

Engineering GM Hiroaki Mochizuki: THK's role in healthcare



Hiroaki Mochizuki, General Manager, Engineering Division, Business Development Department.

THK has undertaken various research and development projects and sales efforts targeting specific markets in order to facilitate its entry into new fields beyond the domain of machine tools and the automotive industry. In addition to the efforts of its ACE Division, which deals with seismic isolation systems, and FAI Division, which handles automotive products, THK is pursuing new business opportunities

in medicine and healthcare, robotics, aircraft technology, and environmental engineering. Medical and healthcare-related research and development represents an especially important market, since such efforts are essential to meeting the needs of Japan's rapidly aging population.

THK has developed many applications for its products in the fields of medicine and healthcare, providing products for use in various kinds of analytical devices as well as custom-made components ideally adapted for their respective applications. We also have the product line called **Seed**

Solutions, consisting of mechanical drives that provide control, communication, and sensor functions for robotic hands, joints, and other moving parts. This technology, which makes it possible to create compact yet high-powered intelligent robotic systems, can be used in service robots, rescue robots, and power-assist robotic devices. In combination with our custom-made linear-motion and rotary-motion elements and components, it has many potential applications in medicine and healthcare.

In order to achieve the main goal of expanding into new areas of business, we need to gather more information and clarify our efforts to move into target markets. For this reason we're making improvements in every area, from marketing to product planning. THK will continue to seek out the views of people working in healthcare and at universities and research institutions and will make effective use of systems for collaboration between medicine and engineering. This will enable us to formulate sound business strategies, develop useful new products, and offer creative ideas to contribute to society.

Safer, lighter robot-assisted gait training with THK **Seed Solutions**



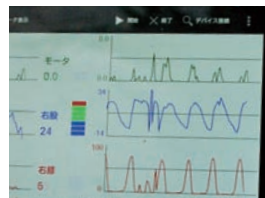
Professor Hidetsugu Terada, Doctor of Engineering, Department of Mechatronics, Graduate School of Medicine and Engineering, University of Yamanashi.

More and more people are undergoing surgery to have knees or hips replaced with an artificial joint. After the operation the new knee or hip works fine, but because many patients have already developed an idiosyncratic gait while walking with deteriorated joints, walking with the new joint is painful, so they're susceptible to falling. We want to help them walk properly again. The most common method has been to have them practice walking while a physical therapist provides verbal instruction, but this often doesn't produce the desired results.

To enable these patients to regain the ability to walk properly, Yamanashi University is collaborating with Kofu Municipal Hospital and private businesses to conduct a robot-assisted gait-training program and related clinical research. The robots used in the program employ THK's **Seed Solutions**, a product line consisting of compact motor drivers, controllers, and actuators designed for use in next-generation robots.



Seed Solutions products built into knee and hip joint components.



Gait-related data transmitted by **Seed Solutions** products.

Before the assisted-gait robots were equipped with **Seed Solutions**, the robot had to be connected to a computer by a cable in order to transmit data such as joint angle and heel height. This was a problem, since the patient could trip over the cable and training distance was limited by the length of the cable. We tried to develop multiple central-processing boards but couldn't make much progress. During the trial-and-error process, we discovered THK's **Seed Solutions** and realized we'd finally found what we were looking for. The craftsmanship is outstanding, and the fact that students can use them right away without a lot of detailed instruction was very attractive.

A **Seed Solutions** product has been incorporated into the knee-joint apparatus on the assisted-gait robots

to control the knee-drive motor. Using sensors, it collects data on various types of motion, heel contact, and other aspects of the patient's gait, and transmits it wirelessly. This enables those involved to check the patient's gait pattern and review rehabilitation progress in real time, which is expected to help improve treatment more quickly than would otherwise be the case. I think wireless transmission is very important in making the patients more at ease, and I think we can expect further efforts to integrate and reduce the size of control boards, to address the forthcoming demand for lighter products.

>> Viewpoints from Kofu Municipal Hospital

Before wireless control became available, we had to maintain physical contact with patients training with the assisted-gait robot to make sure they didn't trip over the cable and fall. This problem was resolved through the adoption of **Seed Solutions** technology.

Due to governmental guidelines and other factors, there are usually limits on the duration of in-patient treatment. To ensure that the patient can reacquire the ability to perform normal daily activities within the limited time we have to work with, we really needed viable access to rehabilitation methods using assisted-gait robots. Many patients who work with the robots have given them very positive reviews, saying they make it easier to take that first step and lift their feet. Some patients, however, have said the robot's weight causes them to tire quickly.

If the assisted-gait robots can be made lighter, most patients will be able to do five laps around the training course instead of only three, which will provide more effective rehabilitation. We're hoping to see these kinds of improvements in the future.



Members of the Kofu Municipal Hospital staff (from left): Hidenori Omori, physical therapist; Yoshinobu Hanagata, physical therapist, Dept. of Rehabilitation; and Masahiro Nakamura, physician, Dept. of Orthopaedic Surgery.

A safer, more user-friendly wheelchair thanks to THK technology



(From left) Masayuki Sato, Manager, Technical Dept., Imasen Engineering Corporation; Masami Kanaya, employee, Technical Dept.

Our firm, Imasen Engineering Corporation, started out as the healthcare division of Imasen Electric Industrial, an automotive parts manufacturer; we became an independent corporation about 30 years ago. Imasen Engineering introduced the Model EMC-3, a groundbreaking electric wheelchair made in Japan, and since then has grown steadily while focusing on two areas: electric wheelchairs, in which our products make up 60% of the domestic market, and prosthetic limbs. A new Planning and Development Department has recently been created, and we're now developing a non-powered assisted-gait device and doing related clinical testing, which will be our third area of activity.

The people who use our wheelchairs are mainly people with disabilities. When you have to sit in the wheelchair for extended periods of time, it often becomes very difficult to shift your backside. If the weight of the upper body is concentrated on just one area of the backside, it can cause pressure sores, or bedsores. To prevent this, we provide wheelchairs equipped with a function that enables the entire chair to be tilted back at an angle.

To shift the pressure from the backside to the back, you have to be able to tilt back at an angle of at least 40 degrees. If the chair's center of gravity doesn't move, however, you're in danger of tipping over backward. For this reason our development team wanted to find a way to move the center of gravity forward only when the chair is tilted back, and THK's Model UGR Utility Slide enabled them to do so. By incorporating the UGR, they were able to arrange for the wheelchair's weight, ordinarily concentrated in the rear of the chair, to be redistributed in a forward direction as the seat slides forward, allowing the chair to tilt back without tipping. Previous models could only tilt up to 30 degrees, but the model equipped with the UGR can tilt back safely at a 40-degree angle. In combination with another function that enables the backrest to recline to a nearly horizontal position, this enables wheelchairs to be used much more comfort-

ably than before.

Incorporating slides to enable the center of gravity to shift forward also allowed the development team to reduce the chair's wheelbase by 5 centimeters and its turning radius by 10 centimeters, making it easier to maneuver in elevators and other tight spaces, which wheelchair users really appreciate.

THK's Model UGR Utility Slide was chosen because it's so sturdy and durable. It will stand up to a very heavy load—the chair itself will buckle before the UGR will. The threaded mounting component is especially well-made, which is very helpful. Our chair has been on the market for two years, but we've never had one returned due to a problem with the slide mechanism. The UGR is a very user-friendly product and a highly useful one.

In light of the rapid aging of Japan's population, Imasen Engineering intends to provide support not only for people with disabilities but also people coping with reduced mobility due to advancing age. In care-giving situations, for example, caregivers often suffer back problems incurred when they help people move from a bed to a wheelchair. To address this, our firm is developing a system to assist with this kind of transfer, and we're hoping that THK will show us some more helpful products to use in the new system. Through lots of mutual interaction and give and take, we expect to find more THK products that meet our needs, just as the UGR has done.



With tilt and recline functions both in use.



Normal position.

Highly accurate blood-count data, thanks to THK technology



(From left) Hiroshi Naya, Hematology Team, Medical Development Dept., Horiba, Ltd.; and Yoshihiro Yano, Section Leader, Machining & Biotechnology Team, Production Dept. 2, Production Division, Horiba, Ltd.

Horiba develops and manufactures an extensive range of original analytical and measuring equipment for the global market, including devices that analyze automobile emissions, air and water quality, and blood components, as well as measuring devices used in semiconductor manufacturing. Our automobile-emissions testing devices hold an 80% share of the global market. Japan's Ministry of Economy, Trade and Industry included Horiba among the top 100 "global niche" firms in 2013.

Horiba's automated blood-cell counter, a medical-care device, employs a syringe unit incorporating THK products. The device measures the respective amounts of red-blood cells, white-blood cells, hemoglobin, and platelets in the blood. It's a compact unit that can deliver lab results virtually anywhere, so it's widely used by doctors in private practice. Pediatric doctors have found it particularly useful, since young children are often unable to clearly describe their own symptoms. Using the blood-cell counter, by drawing a very small amount of blood a pediatrician can monitor red-blood cell and white-blood cell levels and check for the presence of CRP, a protein that appears in response to inflammation. This enables the doctor to determine whether the child is getting better or if time is still needed to effect a recovery, and makes it possible to di-

agnose the symptoms based on the data provided. The device is easy to operate, and it takes only about a minute to analyze the basic components in a blood sample (it takes about four minutes to measure CRP), so this can be done while the doctor is seeing the patient. It's an easy and convenient process that enables doctors to make a comprehensive, accurate diagnosis, and they often talk about how much they appreciate this. We hear that, at many hospitals, as soon as a new pediatrician starts practicing they order another blood-cell counter from Horiba.

Ordinarily a lot of components are needed to enable high-precision measurements. By employing a syringe unit that uses THK LM Guides, we have both reduced the number of components and attained high accuracy with a compact device, a prominent feature of our product. Fewer components means shorter, more efficient assembly procedures, and processing is so accurate that even a tiny sample will yield reliable data. We've never heard of anyone having a problem with the THK syringe unit. It's sturdy enough to be considered extremely trustworthy by people in the medical profession.

THK did not simply provide an existing product, they modified the design to meet our specifications. They demonstrated an admirable degree of flexibility in complying with our demands, and we hope to see more of this in the future. We expect to develop and produce new products for the global market, so even when we're procuring components for overseas production sites, we'll look to THK for the same kind of excellent service they've provided in the past.



Accurate data can be obtained from a very small sample.



Hematology and CRP analyzers.



Generating electricity from wind power

As reported in the 2011 edition of the *THK CSR Report*, THK installed two full-scale model vertical-axis wind turbines and one one-tenth-scale model horizontal-axis wind turbine on the grounds of the THK INTECHS SENDAI Plant, for use in experiments for research and development focusing on components for wind-power generators. The experiments have been

completed, and the plant has now begun using the turbines to provide power to light its two parking lots.

In this section we'll take a look at two aspects of THK's contributions to developing this new source of clean, environmentally compatible energy: wind-power generation itself and the innovative new horizontal-axis wind turbine.

Putting wind power to use

Ohiramura, the village where the SENDAI Plant is located, has an environment that's well suited to wind-power generation. Since September 2013 a special power system devised by THK has channeled the electricity generated by the three wind turbines to a set of batteries that supply power to the LED lights that illuminate the plant's parking lots at night. Although the amount of electricity involved is a small fraction of the plant's overall usage volume, it does

help reduce energy consumption.

The SENDAI Plant has two parking lots, east and west. The east parking lot used to be lit with lights attached to the plant's outer wall, so part of the lot remained in darkness; now the whole lot is illuminated. The west parking lot, which had no lights at all, is now lit up brilliantly at night.

Sendai Plant parking lot lighting

	East lot	West lot
Light standards	5	3
Power consumption	200W	120W
Hours of continuous lighting (when batteries are fully charged)	62.4	104



An LED light standard illuminates one of the plant's two parking lots.

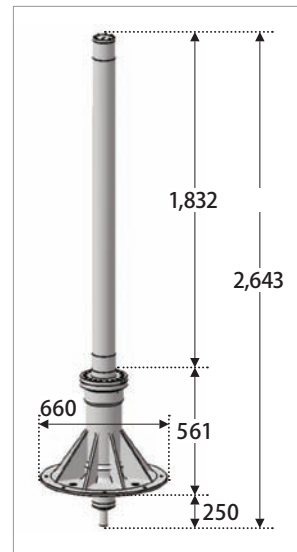
Wind power without powerful winds

Once THK had erected its vertical-axis wind turbines, experimentation revealed that they needed a mechanism enabling them to operate in relatively weak winds. A subsequent process of trial and error eventually led to the development of the low-torque shaft unit, a component that enables wind turbines to generate electricity more efficiently.

Commercially available rotary bearings had been used in the past, but thanks to the use of the shaft unit developed by THK, only half as much wind power is required to operate the turbine. Even a mild breeze, such as that produced by a fan operating at medium speed, will turn the blades. This made the turbines operate more effectively, increasing their generating-efficiency rate from 25% to 28%. They also meet safety criteria for strength and durability under the IEC 61400-2 design requirements for small wind turbines.

THK has developed and is currently testing a compa-

rable component for its one-tenth-scale model horizontal-axis wind turbine and will soon take up the challenge of creating a full-scale model.



The low-torque shaft unit developed by THK; dimensions shown are in millimeters.

Generating hydroelectric power

In the hope of making further contributions to society by facilitating the use of renewable energy resources, THK has developed a small-scale hydroelectric generator and is currently testing it at Taiwan's Feng Chia University and in Longtan Township, Taoyuan County, also in Taiwan.

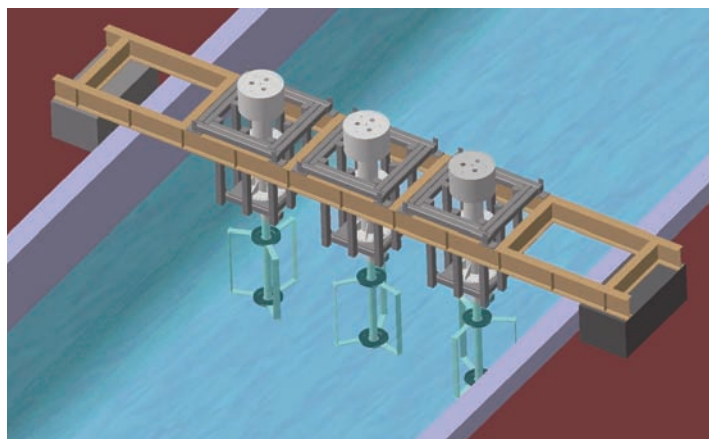
The device, known as a straight-wing vertical-axis hydroelectric turbine, generates electricity from ordinary currents, rather than falling water. Installation does not require the extensive civil engineering work needed for conventional hydroelectric facilities; the cost is comparatively low and installation can be accomplished fairly quickly. Other features are described below.

Tests have shown that, based on full-time operation over 30 days, THK's device can generate 243 kilowatt-hours

of power per month from a current flowing at the speed of one meter per second, and 1,944 kilowatt-hours from a current flowing at two meters per second. According to Tokyo Electric Power, the average household uses about 300 kilowatt-hours per month, so a current flowing at one meter per second could be used to generate 80% of the electricity a family needs.

THK's straight-wing vertical-axis hydroelectric turbine can be easily installed in existing irrigation channels and other waterways, so it is expected to be welcomed in parts of the world where there is no power grid, and it will also provide a useful emergency energy source when natural disasters occur.

Feature	Advantage
Ease of installation	The turbine can be installed in an existing waterway by means of a simple procedure.
Little impact on water flow	There are wide spaces between the wings, so water flow is essentially unimpeded.
Little risk of malfunction due to debris in the water	Leaves and other small items of debris flow on through without impeding the turbine's operation.



The straight-wing vertical-axis hydroelectric turbine.



Generating solar power and recovering waste heat

THK's various plants and other facilities are working to reduce CO₂ emissions in order to help curb global warming.

This subsection takes a look at some efforts underway at the YAMAGUCHI Plant.

Yamaguchi's Katsunori Yamamura: High hopes for energy savings



YAMAGUCHI Plant Manager
Katsunori Yamamura.

We've been working to revise and improve quality-control procedures at the YAMAGUCHI Plant for some time, and as part of this effort we hold periodic presentations. To ensure that ideas for improvements are shared and implemented throughout the plant, we decided to have each department report on their own improvements at our monthly

meetings. People from other departments offer their comments and make suggestions, and when we are presented with an idea that promises to bring results, we have it implemented throughout the plant. The next month we get a follow-up report on its impact on quality, cost, and delivery. We've created a climate in which everyone at the plant works together to help things change for the better.

Some of the improvements have been based on creative proposals for conserving energy offered by the Environment Education Section, such as one that called for re-

cycling cooking oil used in employees' homes to produce fuel for diesel-powered forklifts. Instead of large-scale capital investment, this sort of proposal focuses on the plant's existing equipment.

Grinding machines, which are essential for manufacturing LM Guides, discharge a considerable amount of cooling water. It was suggested that it might be possible to use this water to generate electricity, so we have installed small-scale hydroelectric turbines in cooling water drainage channels on a trial basis.

We'll continue our efforts to conserve energy, including through capital investment, and we'll continue to welcome new ideas from anyone who can provide them. We're encouraging the development of a mindset that's ready to meet new challenges without forgetting past mistakes.

On the following page you'll find a report on a capital investment project devoted to installing solar panels at our plant, as well as an article on a project, inspired by a suggestion from an employee, aimed at recovering waste heat generated by compressors.

Using solar power



Above, the location of the solar panels in the photo at the top of page 14.

At left, a monitor displays the volume of electricity being generated by the solar panels.

In order to conserve energy by providing greater access to renewable energy sources, in late December 2013 the YAMAGUCHI Plant installed 120 28-kilowatt solar panels on wall facing a highway known as the Asa Habu Bypass, which runs past the plant to the south. The electricity they generate is used to run the lights and computers in the office wing on weekdays and runs the assembly room ventilation system on off days. The volume of solar power being generated can be viewed on a monitor located next to the elevator at the entrance to the office wing.

Based on the estimated amount of sunlight in the area where the plant is located, the solar panels are expected to generate about 33,000 kilowatt-hours of power each year. This will only reduce the plant's overall power consumption by around 0.15%, but even this small reduction will help in the ongoing effort to conserve energy.

Electricity generated

	kWh
December 2013	143
January 2014	2,477
February	2,139
March	3,369

Recovering and reusing waste heat

The YAMAGUCHI Plant has also mounted an initiative aimed at recovering waste heat generated by air compressors. Rather than simply allow the heat to escape, plant officials thought it might be possible to redirect it and use it to help keep the plant warm during the winter, so they conducted a simple experiment inside Plant No. 2. Waste heat was routed through a mist collector and an air-conditioner to produce warm, clean air, which was then directed by a fan into the work area. As expected, this raised the temperature there. Once this was proven to be an effective method for recovering and reusing waste heat, it was employed inside Plant No. 1, where a large-scale industrial fan was installed to ensure that the warm air penetrated to every corner of the workplace.

When readings were taken at Plant No. 1 in early March, the outside temperature at 3:00 a.m. was approximately 30 °F(-1.3°C). Inside it was about 66 °F(19°C) near an exhaust vent and a little over 64 °F(18°C) in the center of the facility. The heating system had previously been entirely dependent on the use of fuel oil; this effort reduced the volume of fuel oil consumed from December to February by about 18,500 liters. That's the energy equivalent of approximately 19 kiloliters, which represents a roughly 0.3% decrease in the plant's overall energy consumption.

The same method for recovering and reusing waste heat generated by air compressors is expected to be employed inside Plant No. 2 as well.

A large-scale fan directs recovered waste heat inside the plant.



3 major areas of endeavor



Management system Page 17

The concept of corporate social responsibility has become widely established, and businesses are encountering increasingly demanding expectations from society as a whole. At THK we feel that, as an enterprise engaged in *monozukuri*, our most important mission is to maintain transparency in our operations and foster a corporate culture that is thoroughly responsive to societal expectations. To this end we have taken steps to ensure thorough awareness of our corporate social responsibilities and established a highly effective management system to ensure they are fulfilled.



In focus in 2013

- Governance system
- Compliance training in Vietnam



Involvement in society Page 20

In light of the continuing need for recovery efforts in the aftermath of the Great East Japan Earthquake and the need to rebuild Japan's long-struggling economy, THK and other firms engaged in *monozukuri* have more opportunities to contribute to society than ever before. As we continue to cultivate mutually beneficial relationships with our many stakeholders, we will also continue to demonstrate the vital importance of *monozukuri* in daily life.



In focus in 2013

- Posters and slogans promoting safety
- Disabled employees in the spotlight
- Assistance with disaster-recovery efforts
- Government, private industry, and academia working together



Harmony with the environment Page 30

Dramatic improvements in energy efficiency, increased product longevity, and other technological advances have contributed greatly to reducing energy consumption in daily life. THK's efforts are propelling further advances in Japan's environmental technology, already regarded as the best in the world. We continue to pursue a variety of initiatives in this field, secure in the conviction that, in passing these advances on to future generations, we are helping to preserve the global environment.



In focus in 2013

- Protecting water resources in China
- New efforts at the SUWA Branch
- The YAMAGUCHI Plant pitches in

Compliance

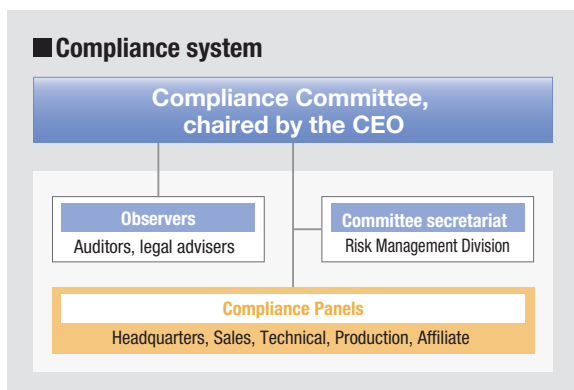
Compliance system

THK has had a permanent Compliance Committee since 2005, chaired by its president and CEO. The Compliance Committee sets policy in relation to THK's compliance system and deals with violations of laws, regulations, and internal rules, as well as internal reports of such infractions. In addressing specific violations, the committee consults with legal advisers who attend its meetings as observers, to ensure that the response is appropriate and legally sound.

THK has also established the THK Helpline, an internal notification system designed to deter potential compliance-related violations by executives or employees and ensure that prompt and appropriate action is taken in the event that a violation occurs. In 2013 four reports were received via the helpline; all four were resolved in cooperation with the departments involved.

Each business division has its own Compliance Panel, all of which report to the Compliance Committee. Compliance Panel members provide guidance and act as liaisons to help ensure observance of the compliance system at each THK location and within each area of business. They play an important role, organizing voluntary workshops and making other efforts to help ensure full compliance with all legal and regulatory requirements.

In January 2014 THK conducted a survey via its internal computer network to ascertain employee attitudes toward compliance issues, determine the level of compliance awareness, and guide future efforts to improve the compliance system. The survey, to which responses were submitted anonymously, consisted of 30 questions concerning individual behavior and situations in the workplace. Approximately 1,500 surveys were completed. The results, which were tallied and reported to the Compliance Committee, offered a number of revelations that will help guide future training and compliance-education efforts.



Education and training

In December 2013, 101 locally hired employees, together with employees from Japan, took part in a workshop on “Awareness and Self-respect as a THK Employee” at THK MANUFACTURING OF VIETNAM. The session focused on some important issues, such as the universal applicability of the societal expectations facing THK—a high-quality product at the right price and at the right time and place—and of the principles espoused in the employee handbook.* Participants were reminded that neither the company nor its employees can prosper without winning the trust of the stakeholders. Scenes from various locations and factories in Japan were shown to help those in attendance better understand THK's corporate culture. The response was favorable, with participants citing a new sense of pride as THK employees and a new determination to achieve personal growth.



A workshop at THK MANUFACTURING OF VIETNAM.

In December 2013 Compliance Panel members attended a periodic training session, conducted by a visiting legal expert, to improve their knowledge of legal matters and reinforce efforts to address compliance-related issues. The participants reviewed case studies and took part in exercises concerned with topics including the disposal of industrial waste, countermeasures against organized crime, and workplace safety, to attain a better understanding of the issues involved.

To help employees better understand the laws governing everyday conduct in the workplace, compliance-related study materials have been made available via THK's in-house e-learning program. In January 2014, 10 new study problems testing basic knowledge of internal controls were added, bringing the total to 117. Employees can also review 30 compliance-related case studies via the e-learning program.



General training session for Compliance Panel members.

*Published in 2007 and now available in nine languages, the handbook is distributed to all employees to provide a handy overview of THK's fundamental principles and help employees ensure that they are performing their duties properly. The contents include THK's corporate philosophy and basic policies as well as the THK Group code of conduct.

Risk management and information security

Business continuity planning

To ensure that it's prepared for a major earthquake or other disaster, THK has been formulating business continuity plans and taking a variety of other actions to reduce the scale of potential damage and help ensure rapid resumption of operations.

>> Securing servers

To protect server computers and other critical computer systems, THK keeps its front-line servers and backup servers at separate data centers, thereby reducing the risk of disruption in the event of a disaster.

THK has also trained its personnel in procedures for switching to a backup server when a front-line server goes down, to ensure that it can mount a rapid recovery if disaster should strike.

>> Securing office supplies and equipment

At THK offices, fixtures designed to prevent objects from being displaced or toppled by seismic tremors have been affixed to copiers and other office machines and installed on storage shelves holding spare parts, tools, and office supplies. In addition, some three-dimensional measuring instruments and tool-storage shelves are protected by THK's own seismic isolation devices.

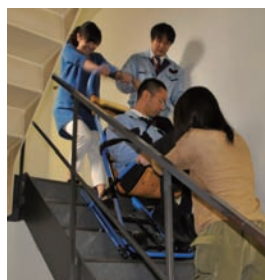
>> Stockpiling emergency supplies

To provide for the needs of those who may be unable to reach their homes in the event of a major earthquake or other disaster, all THK offices have been equipped with food, drinking water, blankets, portable toilets, and other emergency supplies. At THK plants with especially large numbers of employees, stretchers and other rescue supplies have been procured, along with emergency generators and other equipment needed for the resumption of operations.

>> Training for a disaster

THK Headquarters conducts evacuation drills, firefighting exercises, training in first aid, including in the use of defibrillators and in transporting the injured using conveyance devices designed for stairways, and training in the use of emergency generators. In 2013 the program was expanded to include training in coping with heavy smoke, using special equipment that simulates conditions in a smoke-filled building.

Critical infrastructure has been constructed at the GIFU Plant, YAMAGUCHI Plant, and NAGOYA Branch



Training exercise: moving an injured person down a stairway.

to enable some headquarters functions to be transferred to those locations. In 2013 exercises were conducted to assess the YAMAGUCHI Plant's readiness to have headquarters functions transferred there; the results indicated that such a transfer could be carried out effectively.

Each THK Group business location has been equipped with satellite telephones, and regular training is provided in emergency communications procedures.

>> Countermeasures against infectious diseases

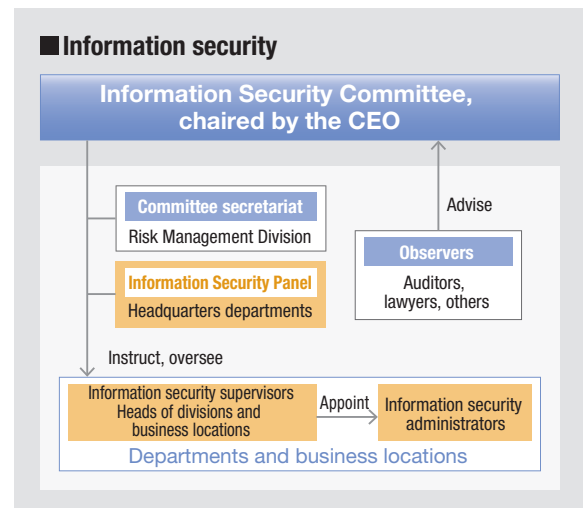
THK continually monitors the status of infectious diseases overseas, including avian flu and the Middle East respiratory syndrome, and relays precautions and other relevant information to employees of overseas affiliates and employees who are traveling or posted overseas. When deemed prudent, THK also provides items such as breathing masks and disinfectant.

Information security

To help ensure that reliable information security systems are in place throughout the THK Group, in 2013 the Information Security Committee Office conducted internal audits of information security arrangements at four business sites in Japan, including those of affiliated companies.

Training sessions were conducted at THK plants and affiliates in Japan in 2013 to educate employees about the importance of information security. THK also conducts surveys using its internal computer network to ascertain the status of information security throughout the group. When problems are identified, improvements are carried out.

THK is upgrading its antivirus software and taking more forceful measures to prohibit unauthorized access to its computer networks in order to protect against viruses and other malevolent incursions and prevent illicit disclosure of confidential information.



Together with our customers

Product quality, customer satisfaction, collaboration with partner businesses

Quality assurance system

THK continually strives to provide customers with safe and dependable products.

As the market becomes increasingly globalized, THK products are being shipped all over the world. To ensure that product quality is maintained during shipping, THK has come to rely on the “holy trinity”—cleaning, rust-proofing, and packaging.

Cleaning: THK has established standards for product cleanliness and the use of cleaning fluids and has procedures in place to ensure that its products remain free from extraneous matter.

Rust-proofing: THK uses only high-performance, environmentally compatible corrosion-inhibiting oil and film that have undergone rigorous environmental testing in accordance with THK standards.



Analytical instruments.

Packaging: THK standards require the exclusive use of packaging materials proven to withstand the effects of impact, pressure, and vibration.

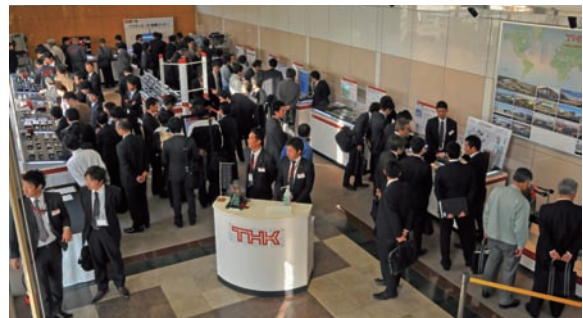
Once all these quality-assurance requirements are met, THK products are shipped all over the world. THK will keep working to improve product quality in order to provide customers with safe, reliable products.



Testing a packing box's pressure-tolerance.

Private exhibitions

THK not only takes part in a variety of trade shows and industry events in Japan and elsewhere in the world, it also hosts its own community-oriented exhibitions and briefings. In November 2013 a two-day exhibition was held at the KOFU Plant to provide visitors with a firsthand look at *monozukuri* in action. In addition to existing customers, the event attracted a broader range of participants than ever before, drawn from construction firms, government agencies, universities, and the Kokubo industrial complex. The attendees had an opportunity to tour the plant, attend technical seminars, and experience seismic isolation at work. All the visitors, including local residents, learned a lot about the work THK performs. THK also frequently holds exhibitions at customer facilities, focusing on applying technology to meet specific needs.



Products on exhibit at a THK showroom.

Technical training for nontechnical personnel

In 2013 THK began an on-site factory training program for employees of its distributors and dealerships. The program was offered three times over the course of the year, attracting 16 trainees from 12 companies. After acquiring a basic theoretical understanding of THK products, the attendees received hands-on training in accurate measuring techniques, product assembly, and other plant operations. The program received positive reviews; participants commented that the training would enable them to provide their customers with more knowledgeable guidance. THK plans to expand the program in the future to include customers as well.



Hands-on training at a THK plant.



Together with our partner businesses

>> Production Innovation Department

From its earliest days THK has always sought to evolve and advance in tandem with its partner businesses. With various firms pursuing their own globalization strategies, in 2013 THK established a Production Innovation Department within its Production Division, for the purpose of forming stronger partnerships and improving its capability to compete in a global market.

The Production Innovation Department works with partner businesses to review processing methods and the form and content of parts and materials, and, by pooling their technical expertise, make improvements in these areas.

>> Local procurement

THK pursues a policy of local procurement, obtaining parts and materials for its overseas production facilities locally whenever possible, in order to address customer needs promptly, facilitate business continuity planning, and avoid foreign-exchange-related risks. In 2013 THK made new arrangements to purchase parts and materials from suppliers who had expanded into China, resulting in major gains in local procurement. In 2014 THK is focusing on ensuring stable pricing and uniform quality in its ongoing effort to increase the ratio of parts and materials obtained through local procurement.

>> Value-analysis proposals

The THK Association, a body made up of THK's partner businesses, was created to acquaint members with THK's management and purchasing policies, foster positive relationships, and help ensure a supply of high-quality products. The evaluation criteria for THK's value-analysis proposal system were revised in 2013 to include help in meeting deadlines and reducing environmental impact, to make the system more accessible for partner business-

es. As a result, nearly twice as many value-analysis and value-engineering proposals were received in 2013 as in 2012. The 2013 proposals were also more wide-ranging than in the past, addressing improvements in products as well as processing. The system is developing into a framework for the rapid review of new ideas applicable throughout the corporation. Many commendations for innovative proposals were awarded at the THK Association's general meeting in June 2014.

Exchanging technology

As part of a project promoting interaction among people involved in *monozukuri*, sponsored by the Yamaguchi Vocational Ability Development Association, THK's YAMAGUCHI Plant hosted a training event in September 2013 for mid-level technicians interested in career advancement. A total of 33 people, all employed at *monozukuri* businesses in Yamaguchi Prefecture, attended the event.

The participants heard an explanation of THK's personnel-improvement efforts and observed a training session in basic machining as well as an in-house test of machine-inspection skills. This was followed by a lively question-and-answer session on topics including training and supervising lower-level employees, improving productivity, passing on technical skills to others, and improving product quality.

The event was well-received by the participants, who praised it as highly useful and spoke of their determination to apply the lessons learned. For THK it presented encouraging prospects for the future of *monozukuri*.

In March 2014 THK's MIE Plant took part in an event hosted by Kawasaki Robot Service, where plant employees presented an improvement proposal concerned with increasing productivity in lathe operations for standard products. About 30 firms participated in the event, offering presentations on other topics that have inspired further efforts at the MIE Plant. THK's interactions with other firms reinforce its daily efforts to attain ever higher customer satisfaction.



Recipients of commendations for value-analysis proposals.



Q&A session at the YAMAGUCHI Plant.

Together with our customers

In their own words

Pioneering seismic control and isolation systems employing THK technology



Tomio Ohno, Chief Structural Engineer,
Senior Expert, Structural Engineering
Department.

NIKKEN SEKKEI LTD.

Founded in 1900, Nikken Sekkei is Japan's foremost comprehensive design firm. With vast expertise in construction design and supervision and urban planning, Nikken Sekkei provides a range of services that includes surveying, planning, and consulting. Its ongoing efforts have helped to improve construction and enhance the societal environment for over 110 years.

Q How did your firm become interested in seismic isolation?

Not only NIKKEN SEKKEI but the whole construction design industry became interested in seismic control and isolation as a result of the Great Hanshin-Awaji Earthquake in 1995. Before that we had prided ourselves on having the world's most advanced quake-resistance technology, but then we saw the unexpected damage caused by that earthquake. From that point on seismic isolation devices and vibration-damping seismic control, which are more effective than previous quake-resistance methods, became incorporated into the construction of office buildings on a full scale. These days, to a great extent, seismic isolation and control are part of the process from the design stage on.

Q What's your assessment of THK's seismic isolation devices?

Based on readings taken from seismographs installed in many different locations, Professor Nobuo Fukuwa of Nagoya University* has determined that most earthquakes in the Nagoya area have a predominant period of three-to-four seconds. This, he discovered, poses problems, because conventional seismic isolation devices generally employ laminated rubber that also has a three-to-four second vibration period, which could cause sympathetic vibration during an earthquake. Plus, rubber can only undergo a limited amount of lateral deformation, a few dozen centimeters at most. With a large building, the rubber component has to be larger as well, which makes it more rigid. We were looking for a seismic isolation device that could lengthen the period and absorb tremors, and we received some information about THK's seismic isolation systems. They can accommodate lateral displacement of up to one meter, which expands the possibilities for use. That's why they could be installed to provide effective seismic isolation for an older structure like the Aichi Prefectural Office Main Building. The Aichi project, regarded as a highly successful effort to improve earthquake resistance, earned a commendation from The Japan Building Disaster Prevention Association.

* Professor Fukuwa discussed seismic isolation technology in an article in the 2012 THK CSR Report.

The construction of research facilities at the Aichi Prefecture site known as the Knowledge Hub Aichi posed special challenges, since the site is located directly over an active fault. Fortunately, it's a strike-slip fault, which generates lateral vibrations. By incorporating THK seismic isolation devices, which are especially effective at absorbing lateral vibrations, we were able to resolve that issue. There are no other products that would enable us to deal with such challenges, which is why we've used products from THK for our pioneering efforts in seismic isolation and control.

Q What do you expect from THK in the future?

Except when earthquakes have struck, there hasn't been any way to accurately assess the performance and effectiveness of seismic isolation systems, but that's changing. In March 2014 a new Disaster Mitigation Research Building, which Nikken Sekkei helped design, was completed at Nagoya University. The new building has a facility where powerful vibrations resembling earthquake tremors can be created, so various kinds of experiments will be performed there. It's entirely possible that these experiments will reveal some unforeseen problems. We'll be looking to THK, as a manufacturer of seismic isolation systems, to respond quickly to any challenges or problems that arise.



THK products in use at the Disaster Mitigation Research Building; the internal structure can be viewed from the outside.

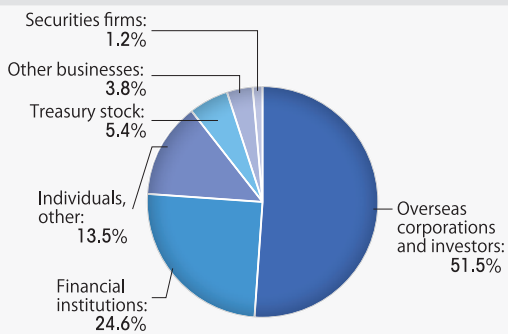
The Disaster Mitigation Research Building.

Together with our shareholders and investors

Events for investors

Twice a year THK holds a financial briefing for investors, where THK's CEO discusses the group's business performance and business strategies. Ample time is provided for questions from those in attendance to ensure that investors have a chance to candidly communicate their views to THK management. THK has also expanded the dialogue to include more investors, through small-scale meetings and individual interviews. Meanwhile, THK provides opportunities for interaction with institutional investors overseas, including teleconferences and annual visits with investors in the United States and Europe, in an effort to engage in more extensive communication with all investors.

Shareholdings by investor type (as of March 31, 2014)



Tools for investors

THK discloses information useful to investors in a fair and appropriate manner to all parties regardless of affiliation or geographical location. Statutory disclosure documents, recent press releases and annual reports, and a fact book for investors are available in both Japanese and English versions in the Investor Relations section of the THK website. Video coverage of financial briefings is also provided.



The Annual Report.

General Shareholders Meeting

In the interest of openness, since 1998 THK has held its annual General Shareholders Meeting on a Saturday in mid-June, avoiding the dates when most corporate shareholders meetings are scheduled, to enable more THK shareholders to attend. Seating for observers is provided to enable representatives of partner businesses and other stakeholders to learn more about THK's operations, and many have attended.

The 44th Ordinary General Shareholders Meeting was held on June 21, 2014, with 400 shareholders in attendance. As in previous years, after the meeting an exhibition was held to offer visitors the rare opportunity for a firsthand look at a number of THK products. This year's exhibition featured machine tools, semiconductor production equipment, and other industrial machinery essential to the pursuit of *monozukuri*, as well as applications for THK products in new areas of business, including seismic isolation, transportation equipment, and three-dimensional printers.



The 44th General Shareholders Meeting.

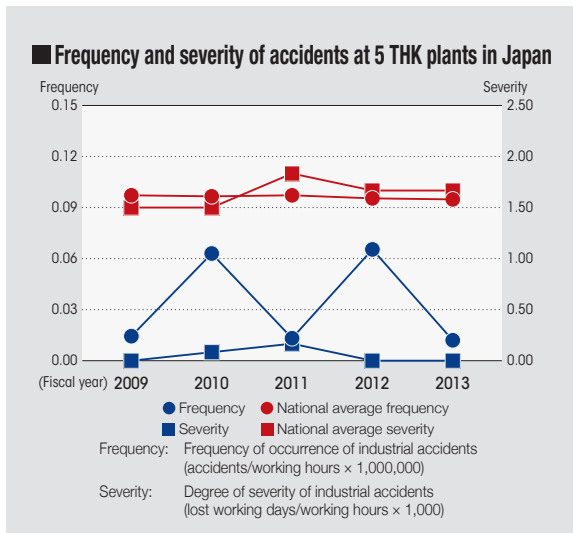


Product exhibition following the annual shareholders meeting.

Together with our employees

Health and safety

Preventing accidents and protecting health



A variety of measures have been put in place to create a safe working environment for THK employees. From December 15, 2013, to January 15, 2014, THK held its annual New Year's "zero accidents" campaign, to heighten employee awareness of the dangers of workplace injuries and traffic accidents and help eliminate their occurrence. Posters and slogans have also been employed to promote safety at THK plants and offices.

THK will continue to safeguard the health of all its personnel and will keep working to ensure a safe and secure workplace for each employee.



A safety campaign poster created by employees at the MIE Plant.

Top prize

T……たるんだ心に今一度
H……広げる安全
K……快適職場
事業開発統括部

ストレスは
心と体に 倍返し!!
技術開発第一部

ちょっとだけ
置いたつもりが 物置き場
技術開発第二部

Prize-winning safety slogans on display at THK's Technology Center.

Firefighting safety

In early October 2013 THK LIAONING employees assembled in four groups to undergo firefighting-safety training under the supervision of a guest instructor from a public-safety facility in Dalian. In late October residents of the employee dormitories received training in evacuation procedures, extinguishing early-stage fires, providing first aid, and using fire-fighting equipment.

To generate even more awareness of safety issues related to firefighting, in December employees in each division took part in contests featuring a written exam and a quiz competition testing their knowledge about firefighting safety. Amid concerns that a fire at the plant could be disastrous, further efforts will be made to ensure that all personnel are well-informed about firefighting safety.



Firefighting training.

Model workplace

In an effort to curtail automobile accidents, in October 2013 THK's YAMAGATA Plant enlisted in an effort to support the "eco driving" movement, as part of a campaign sponsored by Yamagata Prefecture. The movement is intended to promote environment-friendly driving habits, some of which—such as accelerating gently and keeping plenty of space between vehicles on the road—double as safe-driving habits and can therefore help prevent accidents.

The plant has taken a number of steps to encourage safe driving: security guards present visitors with fliers containing eco driving tips; the plant entrance is adorned with banners promoting eco driving; further encouragement is provided through postings on company bulletin boards and in morning briefings. In December 2013 the YAMAGATA Plant was certified by the governor of Yamagata Prefecture as model workplace for the promotion of eco driving.



A banner promoting "eco driving" at the YAMAGATA Plant.

Together with our employees

Support for employee development

Proposals for improvements

THK has a system for eliciting proposals to improve products, efficiency, quality, safety, productivity, and technology, reflecting the value THK places on its employees' insights and ingenuity. Every proposal is evaluated, commendations are awarded for proposals that satisfy certain criteria; cash prizes are awarded as well. Employees receive points based on the results of the evaluations and accumulate more points for successive proposals. When an employee's point total surpasses a certain level, he or she receives a second-level commendation.

In 2013, 11,065 proposals were received, including ideas for new markets for THK products and proposals for improving product quality. By continuing to solicit such proposals from its employees, THK not only finds new ways to improve its operations but also encourages employees to show initiative and develop stronger powers of observation.

Second-level commendations for improvement proposals

	Proposals	Commendations
2011	11,840	352
2012	11,871	331
2013	11,065	278

Improving skills

In an effort to encourage employees to acquire skills applicable to a variety of duties, THK NIIGATA has instituted an internal qualification system and is actively supporting participation in nationally administered proficiency testing.

Under the internal qualification system, newly hired and transferred employees receive training in the use of calipers, micrometers, height gauges, and block gauges, to ensure that they have mastered essential measuring skills. In addition to academic-style testing, the trainees undergo a hands-on skills test requiring them to take 21 actual measurements. Those who pass are entitled to wear a certification badge and go on to help train other employees. By ensuring mastery of critical measuring skills, the system fosters the acquisition of widely applicable skills and helps create a flexible work force equipped to perform a variety of duties, which reduces lead times and ensures stable product quality.

To encourage the development of advanced skills in the use of lathes and machining centers and other types of me-

chanical work, which will help ensure a continuing supply of high-quality products to customers, THK supports employees in their efforts to pass various national proficiency tests. THK provides textbooks and practical exercises to those seeking technical certification. In 2013, 23 employees attained certification, including one employee who received an award from Niigata Prefecture's governor for posting the highest score.

THK will continue to help employees improve their skills, reflecting a heartfelt determination to provide customers with products of the highest possible quality.



Employee Natsumi Yoshida, at left, trains Chika Tsuchida.



First-level and second-level certification badges.



Kazuya Hatayama of Manufacturing Section IV showing off his award from the governor of Niigata.

e-learning

As part of its efforts to support personal development, THK has established an e-learning system that enables employees to pursue personal development whenever they have access to the Internet. The system includes courses in business skills, product knowledge, and compliance, the latter a topic of particular interest in recent years. As of March 2014 a total of 45 e-learning courses were available, including two courses newly added in 2013: Internal Controls: Compliance Drills and Basics of Environmental Management.

Educating employees via e-learning

	Enrollment			Completion
	Eligible employees	Employees enrolled	Percentage of eligible employees	Percentage of enrolled who completed course
September 2011	2,130	1,212	56.9	73.1
September 2012	2,049	1,192	58.2	73.2
September 2013	1,951	1,181	60.5	74.0

Together with our employees

Embracing diversity

Hiring people with disabilities

THK continues to hire people with disabilities to work at its plants and offices. As of April 1, 2014, people with disabilities constituted 2.24% of THK's overall workforce, exceeding the legally prescribed minimum percentage, which is 2.00%.

Among other efforts to facilitate the employment of people with disabilities, THK has employees who visit each THK business location once a year to monitor working conditions, inquire about health, and interview disabled employees and their supervisors, to help sustain a hospitable work environment.

To ensure that disabled employees can discuss and obtain guidance on various aspects of working life, THK has deployed counselors at its headquarters and main plants who specialize in the concerns of disabled employees. Last year the counselors gathered for a workshop to consider measures to support and improve the work environment for disabled employees, as well as to share information and discuss the cultivation and training of support personnel.

THK has specially trained, certified job coaches who pro-

vide support both on and off the job to help facilitate working life for disabled employees and foster a positive work environment. In June 2014 an employee at THK Headquarters will become a certified second-level job coach, joining two other job coaches at the YAMAGUCHI Plant and GIFU Plant. Together they will be able to promptly respond to the needs of disabled employees throughout the corporation.

THK will keep working to provide more amenable working conditions for disabled employees as well as those without disabilities.

■ Disabled employees in the THK workforce (%)

April 2010	April 2011	April 2012	April 2013	April 2014
1.66	1.80	1.89	2.01	2.24

In their own words

Yamagata's Kazuhiro Ono: Don't stop challenging yourself



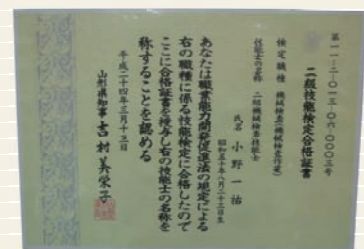
Employee Kazuhiro Ono of Manufacturing Section II, Manufacturing Department at THK's YAMAGATA Plant.

When I was a student I took first place in the shot put and the 800-meter race in a national track meet for the disabled. I had confidence in my physical abilities, so, at the encouragement of a friend who had been ahead of me in high school, I joined THK, and since then I've worked in assembly. In 2013 I passed the second-level national proficiency test in machine inspection, and in 2014 I received a certificate of appreciation from the governor of Yamagata Prefecture for 17 years of exemplary service.

Most of my friends from high school haven't gotten along

too well with the people they've worked with and have changed jobs, but the people at THK understand what it means to be disabled and have stood by me, both personally and professionally. It's thanks to their support that I received this certificate of appreciation.

I'd like to try other jobs besides assembly and acquire more qualifications. There are a lot of disabled people working for THK, and I'd like to see for myself what kinds of jobs others are doing. I'll never stop challenging myself, so I'm going to keep working for THK.



National proficiency certificate.



Ideas for new products

THK conducted a campaign to elicit ideas from all its employees for new products employing guide mechanisms, to be used in automobiles, airplanes, trains, or another type of vehicle or conveyance. Ideas were requested for new products that customers had requested or that would be considered generally desirable.

This time, administrative personnel and Research and Development Division employees reviewed the submissions to identify ideas that meet specific needs in the market. Prototypes were then created for new products embodying the concepts selected.

A total of 117 ideas were submitted, 23 from sales employees, 26 from production employees, 16 from headquarters personnel, 47 from technical personnel, and 5 from business division employees. Two of the ideas submitted led to the development of prototypes.

As a creative, development-oriented company dedicated to meeting customer expectations, THK plans to expand its ideas campaign in the future to include all its employees around the world.

Length-of-service awards

While many businesses honor employees at the end of each decade of service, THK presents length-of-service awards to its employees after every five years of continuous service. In 2014, 579 employees were presented with commendations and commemorative gifts to honor their long-term service.

Length-of-service awards

Continuous service	2010	2011	2012	2013	2014
40 years	0	0	0	1	4
35 years	10	11	14	17	16
30 years	25	23	69	120	85
25 years	139	129	54	85	101
20 years	143	163	128	96	41
15 years	146	177	92	167	70
10 years	77	113	68	81	91
5 years	84	167	161	177	171
Total	624	783	586	744	579

In their own words

Yamaguchi's Mitsuo Suho: Standing up to the pressure



Mitsuo Suho (center), Manufacturing Department Manufacturing Section I with Chikako Nakano (left), Chief, Department of career guidance at the Yamaguchi Minami Sogo Special Needs School and Deputy Manager Shunsuke Yoshinaga of the Environmental Management Section, Manufacturing Promotion Department, at THK's YAMAGUCHI Plant.

THK employees Yukihiro Fujimoto and Masahiro Fujii won consecutive gold medals in the product-packing event at the 2010 and 2012 Abilitympics. This year I represented Yamaguchi Prefecture in the same event, and I felt a lot of pressure to bring home a third straight gold medal. I spent my days off practicing at the welfare center and did intensive training before the competition, though, which gave me some confidence. On the day of the event many of my coworkers showed up to cheer me on, which really encouraged me. Luckily, I managed to win the gold.

I started working at THK as an apprentice when I was in

my third year at the Special Needs School, and I really liked the atmosphere so I ended up joining the company. My present job is inspecting goods that come in from outside manufacturers, but I intend to take the second-level national proficiency test in machine inspection, because I'd like to work in assembly. THK is a company that lets employees challenge themselves, whether they're disabled or not. We should all follow our dreams and never give up.

Ms. Nakano from the Special Needs School mentioned that the first thing I did after winning the gold medal was to thank all the people who supported me. As a guidance counselor, she said this made her very happy, and she asked me to keep on showing people how to achieve their ambitions and make their dreams come true.



Inspecting incoming goods.



Together with our employees

In the community

Charitable contributions

As part of its contributions to society, THK provides monetary assistance when disasters strike and donates money to organizations devoted to the advancement of science and the future development of *monozukuri* in Japan. In addition, THK sponsors a variety of events in communities where it has business locations.

Disaster relief donations

November 2013	Disaster relief in Kyoto Prefecture following Typhoon Man-yi	Japanese Red Cross Society, Kyoto Branch
	Disaster relief in Tokyo Prefecture (Izu Oshima) following Typhoon Wipha	Japanese Red Cross Society, Tokyo Branch
	Disaster relief in Mobara, Chiba Prefecture, following Typhoon Wipha	Japanese Red Cross Society, Chiba Branch
	Disaster relief in the Philippines following Typhoon Haiyan	Japanese Red Cross Society

Other donations

July 2013	Japanese Red Cross Society
December 2013	New Japan Philharmonic Orchestra
January 2014	Japan Science Foundation

Sunshine House award

DALIAN THK has 19 disabled employees, each working in the department of his or her choosing. The rest of the employees treat them as part of the family, taking care of them, advising them on work issues, attending to their problems, whether personal or work-related, and helping to resolve them. As a gesture of appreciation, the city of Dalian presented DALIAN THK with a Sunshine House award, which is given to the top ten employers for the disabled. An article reporting on the award appeared in a Dalian newspaper in December 2013.



Recipients of Sunshine House awards; DALIAN THK CEO Kazushige Ohno is fourth from right.

In their own words

Order Fulfillment Center, West Japan Region, Junji Aoba: THK lends a helping hand

In August 2013 heavy rains led to flooding in Shimane Prefecture, causing a landslide that sent mud flowing into my family's kitchen and living room, partially destroying the house. In the aftermath of the disaster, THK employees from the Fukuoka, Fukuyama, and Hiroshima branches quickly arrived to help with the work of removing the mud. It took five two-ton trucks to haul it all away. The appliances were ruined and had to be discarded as well.

Volunteers from our community and from all over the country assisted with relief efforts, and a total of 30 employees from THK lent their efforts over the first three days following the disaster as well. There are a lot of elderly people in our town, Ōnan-chō. It was amazing to see all the young people from THK who came to help with the recovery work.

We deeply appreciated the consideration shown by THK in sending employees to help with the difficult task of removing the mud, which took several days. I'd like to take this opportunity to offer my sincere gratitude.



A commemorative photo of some of the volunteers, inscribed with words of appreciation.



The mud-filled kitchen.



Tree-planting project

To support a project sponsored by the municipal government of Dalian to cover barren mountainous areas with vegetation, in April 2013 44 DALIAN THK employees volunteered to take part in a tree-planting effort in an area called Lazishan.

About 150 volunteers gathered on a sunny morning to plant approximately 500 saplings, about 150 of which were planted by THK employees. It will take around five years for the saplings to grow enough to create a covering of green foliage, but the area is expected to offer an enjoyable environment for future generations.



Planting trees in Lazishan.

Tetsuhiro Nishide: Coaching future J Leaguers

I was in the rugby club in high school, and I love athletics. I started coaching a local elementary school soccer team four years ago, when my own child started playing, and I've also become certified as a soccer referee. Every Saturday morning we practice on a soccer field in Tamagawa or have matches with other teams. Rain or shine, I'm out there trying to help the kids get better. As a coach and referee, I've learned the importance of strategic thinking and quick decision-making, both of which are very useful in my job.



Children's soccer coach and THK employee Tetsuhiro Nishide, Manager, Engineering Division, Engineering and Development Department, Research and Development Unit I.

I'm going to keep on coaching children's soccer, hoping my players will one day become J Leaguers.



Yamagata: *Monozukuri* moving into the future

In light of the increasingly globalized nature of society, Yamagata Prefecture is eager to demonstrate that its schoolchildren are keeping up with technological advances occurring around the world. Three-dimensional printers are becoming essential tools for developing prototype components for industrial products and related research, and some have already been installed at industrial schools in other prefectures, as ideal objects for study. To cultivate creativity by fostering the development of intellectual abilities, basic skills, and practical abilities, a consortium of private-industry, public-sector, and academic institutions in Yamagata is carrying out a project to provide the prefecture's elementary schools, middle schools, and high schools with the means to enable students to build 3-D printers themselves.

THK's YAMAGATA Plant, which is taking part in this initiative, is providing LM Guides for use in the project. An official at the Yamagata Prefectural Education Institute has commented that the use of LM Guides enables printers to operate smoothly and with minimal noise. While noting that 3-D printers for schools are still in the experimental stage,

he expressed the hope that, with further improvements, they will help inspire the development of new types of printers, and welcomed THK's contributions to the project. The YAMAGATA Plant is providing all possible support for efforts to cultivate a new generation of skilled workers in the prefecture.



A 3-D printer incorporating THK products.

Environmental management

Basic environmental policy

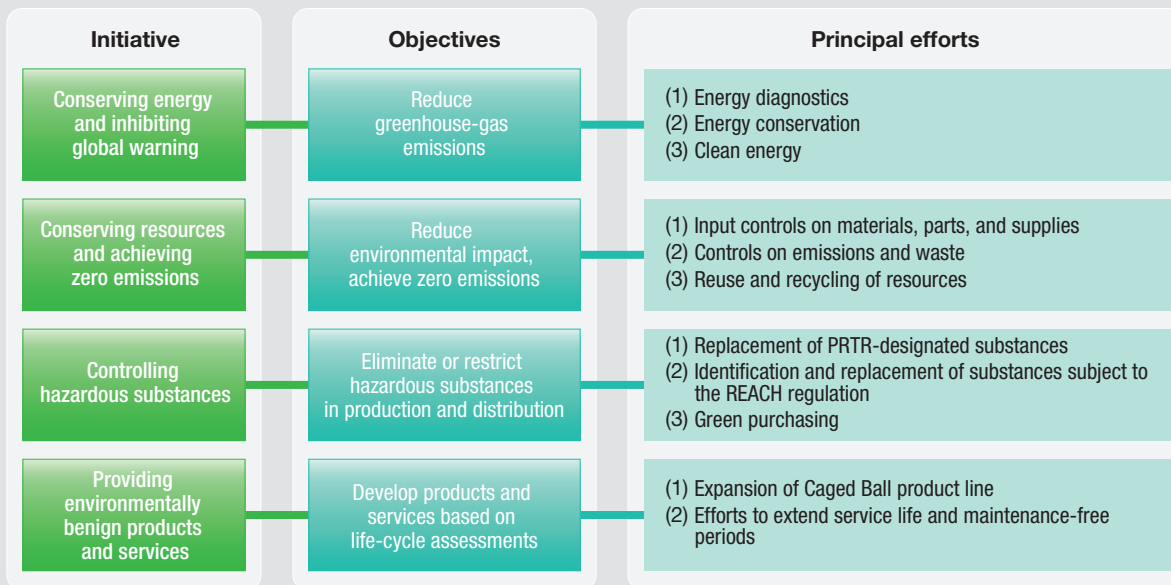
THK has contributed to social and economic progress through its pioneering role as a manufacturer of linear motion systems and machine components. THK recognizes that businesses have a vital responsibility to help maintain

a healthy global environment for the benefit of future generations. Accordingly, THK has undertaken a broad range of initiatives to steadily reduce its environmental impact and preserve and improve the natural environment.

The THK Group's basic environmental policy (revised June 3, 2013)

1. Preserving the environment is one of our most important tasks. We will strive to accurately determine the environmental impact of our products, services, and overall business activities and to ensure that every unit within the Group establishes and observes appropriate environmental targets.
2. We will abide by all laws and regulations concerning environmental matters and establish and observe voluntary environmental standards, reviewing these whenever necessary in pursuit of more efficient and effective environmental management.
3. We will continually strive to develop products that help reduce environmental burdens.
4. We will continually strive to reduce our overall energy usage as well as specific energy consumption and reduce our greenhouse-gas emissions.
5. We will continually conserve and recycle resources, primarily by reducing and recycling waste from our manufacturing divisions, and strive to prevent environmental pollution.
6. To extend our environmental efforts throughout the entire Group, we will assist and help guide efforts by affiliates and partner businesses and cooperate and collaborate with the communities where THK conducts business.
7. This basic environmental policy will be communicated to every division in the THK Group through education, training, and other means of raising environmental awareness. We will disclose relevant environmental data to parties both within and outside the Group in a timely manner.

Environmental initiatives and objectives



Environmental management system

Overview

THK production sites in Japan and overseas continue to acquire ISO 14001 certification for environmental management. Conditions at each production site are reviewed to ascertain that duties designed to ensure compliance with ISO 14001 requirements are faithfully carried out and all legal obligations related to the environment are honored. The plan-do-check-act cycle is carefully applied in an effort to continually improve environmental management.

Because environmental management is an endeavor extending throughout the THK Group, the Risk Management Division's Environmental Management Department, located at THK Headquarters, coordinates efforts by THK plants, offices, and distribution facilities to reduce environmental burdens. The department is working to disseminate information and educate people about environmental issues more effectively.

In 2013 THK achieved two of its three primary environmental objectives for the year, meeting numerical targets for energy conservation and reducing CO₂ emissions as well as for reducing the use of PRTR-designated hazardous substances. The 2013 targets for conserving resources and progressing toward zero emissions (reducing the volume of end waste), however, were not met.

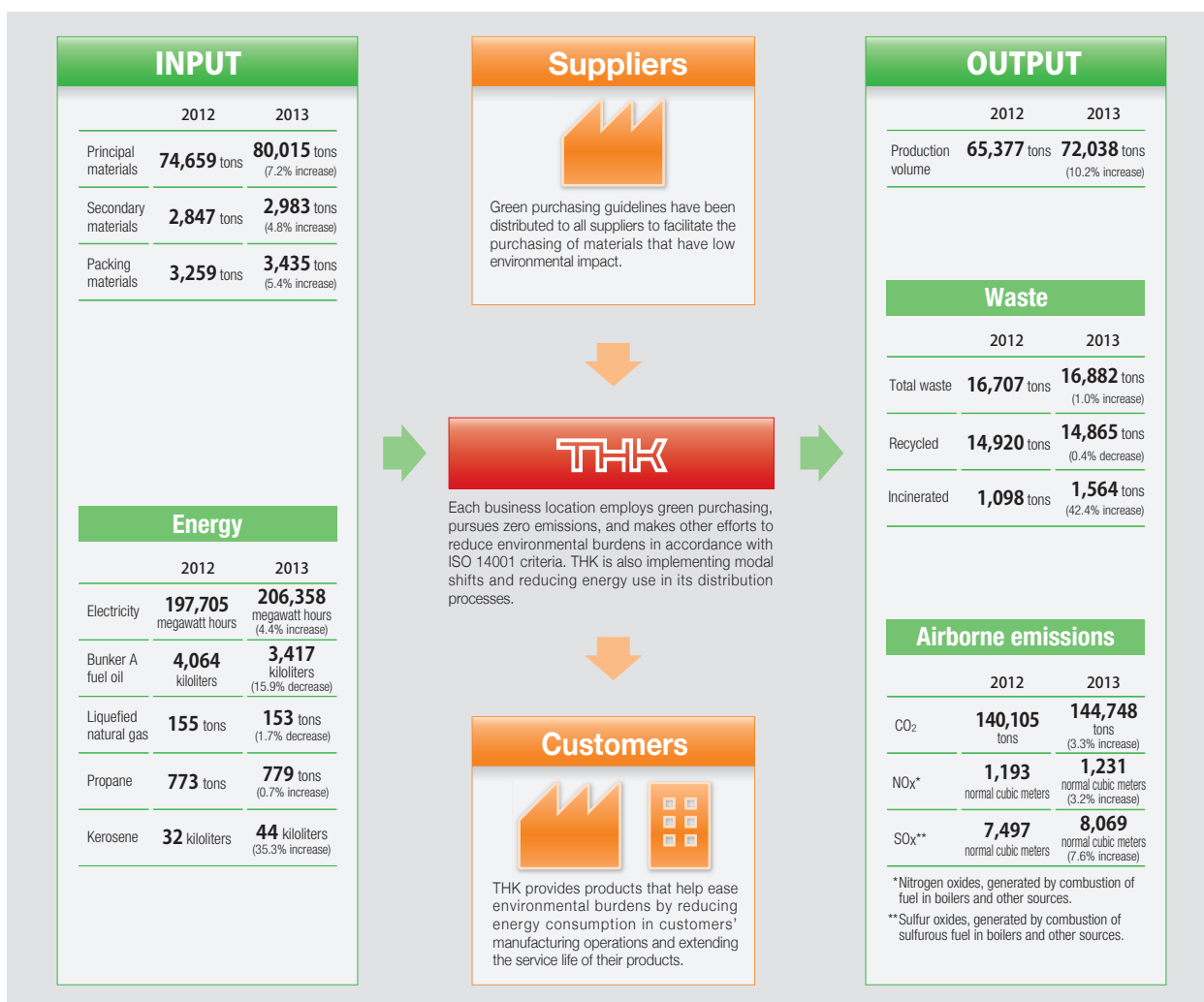
ISO 14001 certified facilities

Facility	Date certified	Certifying body
YAMAGATA Plant	Date renewed: Dec. 17, 2010	JQA
KOFU Plant		
YAMAGUCHI Plant		
MIE Plant		
GIFU Plant		
THK RHYTHM NORTH AMERICA	Jun. 13, 2001	SQA
THK RHYTHM Headquarters & HAMAMATSU Plant	Dec. 20, 2001	JIA
THK RHYTHM KYUSHU	Dec. 20, 2002	JIA
TMA (USA)	Jul. 14, 2003	QMI
TME (Europe)	Feb. 3, 2004	AFAQ
THK NIIGATA	Oct. 21, 2005	JQA
THK RHYTHM INASA Plant	Dec. 20, 2006	JIA
THK WUXI (China)	Jan. 7, 2008	CQC
DALIAN THK (China)	Dec. 18, 2008	TUV
THK LIAONING (China)	Jan. 12, 2010	TUV
THK INTECHS MISHIMA & SENDAI Plants	Mar. 21, 2013	ClassNK

THK's environmental targets

No.	Task	Fiscal 2013 results & fiscal 2014 targets	Targets to be achieved by 2016																					
1	Conserving energy and inhibiting global warming	<p>Reducing basic-unit CO₂ emissions (kilograms per ¥1,000) 2013 target: 1.08; 1.04 achieved (target met). 2014 target: 1.03 (1% lower than in 2013). Major efforts in 2014 (1) Switch to more energy-efficient heating and cooling systems (2) Switch to energy-efficient LED lighting (3) Rescheduling of shifts to reduce peak power consumption</p>	<p>Reduce basic-unit CO₂ emissions by 1%. Baseline: 1.10 tons per ¥1 million (tons per ¥1 million)</p> <table border="1"> <caption>Basic-unit CO₂ emissions (tons per ¥1 million)</caption> <thead> <tr> <th>Fiscal year</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>Actual</td> <td>1.12</td> <td>1.11</td> <td>1.08</td> <td>1.03</td> <td>1.02</td> <td>1.01</td> </tr> <tr> <td>Target</td> <td>1.10</td> <td>1.09</td> <td>1.04</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Fiscal year	2011	2012	2013	2014	2015	2016	Actual	1.12	1.11	1.08	1.03	1.02	1.01	Target	1.10	1.09	1.04			
Fiscal year	2011	2012	2013	2014	2015	2016																		
Actual	1.12	1.11	1.08	1.03	1.02	1.01																		
Target	1.10	1.09	1.04																					
2	Conserving resources and achieving zero emissions	<p>Maintaining a minimal emissions rate 2013 target: Rate under 0.50%; 0.55 achieved (target not met). 2014 target: Rate under 0.50%. Major efforts in 2014 (1) Recycling of grinding materials (2) Recycling of plastic waste (3) Reduction of nonindustrial waste</p>	<p>Maintain zero emissions—less than 0.5% of waste undergoes final disposal. (%)</p> <table border="1"> <caption>Percentage of waste undergoing final disposal (%)</caption> <thead> <tr> <th>Fiscal year</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>Actual</td> <td>0.48</td> <td>0.54</td> <td>0.55</td> <td>0.50</td> <td>0.50</td> <td>0.50</td> </tr> <tr> <td>Target</td> <td>0.50</td> <td>0.50</td> <td>0.50</td> <td>0.50</td> <td>0.50</td> <td>0.50</td> </tr> </tbody> </table>	Fiscal year	2011	2012	2013	2014	2015	2016	Actual	0.48	0.54	0.55	0.50	0.50	0.50	Target	0.50	0.50	0.50	0.50	0.50	0.50
Fiscal year	2011	2012	2013	2014	2015	2016																		
Actual	0.48	0.54	0.55	0.50	0.50	0.50																		
Target	0.50	0.50	0.50	0.50	0.50	0.50																		
3	Controlling hazardous substances	<p>Reducing the use of PRTR-designated substances 2013 target: 52,755 kilograms; 52,212 kilograms achieved (target met). 2014 target: 50,645 kilograms or less. Major efforts in 2014 (1) Controlled usage of fuel-oil-powered equipment (2) Reduced use of hazardous substances (3) Reduced use of solvents, use of non-solvent alternatives</p>	<p>Reduce annual volume of PRTR-designated substances by 3%. Baseline: 58,046 kg (kg)</p> <table border="1"> <caption>Annual volume of PRTR-designated substances (kg)</caption> <thead> <tr> <th>Fiscal year</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> </tr> </thead> <tbody> <tr> <td>Actual</td> <td>66,871</td> <td>56,305</td> <td>52,755</td> <td>50,645</td> <td>49,126</td> <td>47,652</td> </tr> <tr> <td>Target</td> <td>58,046</td> <td>54,386</td> <td>52,212</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Fiscal year	2011	2012	2013	2014	2015	2016	Actual	66,871	56,305	52,755	50,645	49,126	47,652	Target	58,046	54,386	52,212			
Fiscal year	2011	2012	2013	2014	2015	2016																		
Actual	66,871	56,305	52,755	50,645	49,126	47,652																		
Target	58,046	54,386	52,212																					

Environmental impact: The big picture



Environmental conservation: Costs

(¥ million per year)

Type	Investment	Cost	Principal efforts
1. Business costs			
Pollution controls	4	22	Monitoring air and water quality, maintaining scrubbers and septic tanks
Global environmental conservation	73	21	Installation of energy-efficient fixtures and incidental equipment
Recycling	1	97	Disposal of waste materials, reducing recycling costs
2. Upstream and downstream costs			
	0	18	Green purchasing
3. Management			
	4	138	Acquisition of ISO certification, reduction of energy usage, management of chemical substances
4. Research and development			
	50	316	
5. Community activities			
	0	7	Planting and beautification, informational initiatives
6. Repairing environmental damage			
	0	0	
Total	131	619	

Notes: 1. The figures above are based on data from THK's five main plants in Japan: YAMAGATA, KOFU, GIFU, MIE, and YAMAGUCHI; other THK Group plants in Japan: THK NIIGATA, two THK INTECHS plants, NIPPON SLIDE, THK RHYTHM, and THK RHYTHM KYUSHU; and seven THK plants outside Japan: TMA (USA), TME (France), DALIAN THK (China), THK WUXI (China), THK LIAONING (China), TMV (Vietnam), and TMI (Ireland).

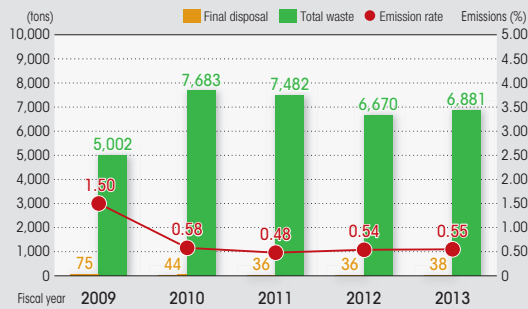
2. Figures on nitrogen oxide and sulfur oxide emissions apply only to THK's five plants in Japan.

Conservation of resources and zero emissions

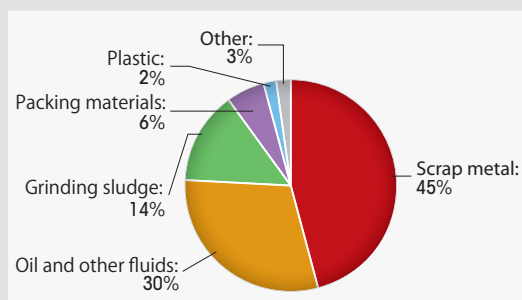
Status of current efforts

THK sets waste-reduction targets based on its emission rate—the volume of waste undergoing final disposal, expressed as a percentage of the total volume of waste generated. The 2013 target was a rate below 0.50%, but THK recorded an emission rate of 0.55% for the year and failed to meet the target. Although virtually all waste materials had been recycled in the past, some discarded grinding materials could not be recycled in 2013, and this caused THK to exceed its target for buried waste. In 2014, however, THK expects to be able to recycle all discarded grinding materials. In this way, as well as by recycling plastic and reducing the volume of nonindustrial waste, THK expects once again to achieve an emission rate under 0.50%.

Trends in waste generation



Waste by type



Clean production activities

THK LIAONING has embarked on a clean production initiative, which was singled out for praise by the city of Dalian's Environmental Protection Bureau in May 2013. The initiative is devoted to reducing energy consumption through careful management and deployment of advanced technology

and equipment, in order to use resources more efficiently and produce and emit less pollution. Improvements were achieved in 50 areas identified by the plant's own employees, including recycling of grinding materials and reduced use of plastic through more efficient injection-molding.



A clean production workshop.

Recycling cans at TME

At THK Manufacturing of Europe, receptacles for recycling aluminum cans have been stationed in every recreation area and in the employee cafeteria as part of the Every Can Counts campaign, which was initiated by a British group and expanded to the European continent through the assistance of local governments. TME has enlisted in the campaign at the urging of an environmental organization in Alsace, where TME is located.

The cans are collected by a contractor designated by the Alsatian group and then processed for recycling. Proceeds obtained through these activities are used to fund other environmental conservation initiatives.



Reusing water from steam drains

To help conserve water resources, which is a serious issue in China, in October 2013 THK WUXI installed equipment enabling water collected in steam drains to be reused. Steam from the plant's heating and cooling system condenses, and the resulting hot water drains into a cooling vat where a plate-type heat exchanger recovers the heat, which is then redirected for use as rinse water in sinks and toilets. This is expected to result in a 35% reduction in water use, an annual savings equivalent to 30,000 tons.



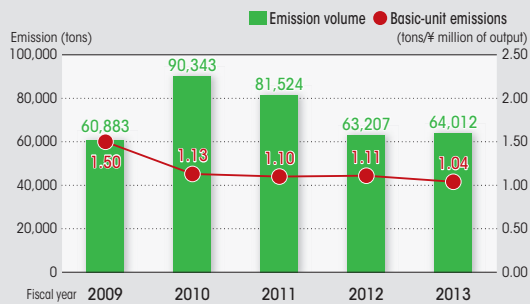
Conserving energy and combating global warming

CO₂ emissions

THK's targets for reducing CO₂ emissions are expressed in basic units (CO₂ emissions divided by the value of goods produced). The 2013 target was 1.08 and the actual result was 1.04, an approximately 4.4% improvement. Thus, the target was achieved. In terms of absolute quantities, however, due to increased production CO₂ emissions rose from 63,207 tons in 2012 to 64,012 tons in 2013, an increase of roughly 1.3%.

In 2013 THK installed energy-efficient heating and cooling equipment, upgraded lighting fixtures to include LED lights, metal halide lamps, and motion sensors, installed solar panels, and introduced compressors powered by waste heat. In addition, a system regulating the number of compressors in operation was modified and improved and equipment was installed to enable monitoring of power demand. A variety of measures were enacted to curb energy consumption, including reducing standby power consumption by production machinery, carefully managing temperature settings in heating and cooling systems, and turning off lights not in use.

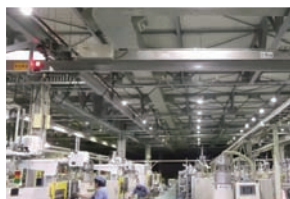
Trends in CO₂ emissions



Installing LED lighting

>>YAMAGUCHI Plant

The Plant No.1 assembly room and final inspection room were formerly lit by 160 fluorescent light fixtures, each with two 100-Watt bulbs, which consumed electricity at the rate of 12,800 kilowatt-hours per month. To reduce power consumption, the old lights were replaced with 160 94-Watt LED fixtures, which require 52% less power, lowering



LED lighting in the molding area.

consumption to about 6,000 kilowatt-hours per month. In the molding area, 78 300-Watt mercury lamps were replaced with 122-Watt LED fixtures, resulting in a reduction in power consumption of 6,100 kilowatt-hours per month.

>>THK NIIGATA

Tube-type LED fixtures were installed in the corridor connecting the plant with the offices and in the plant itself, reducing annual power consumption by 500 kilowatt-hours.

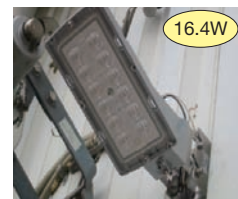
The lights in the elevators, which used to stay on all the time, are now activated only when the doors open, resulting in additional energy savings of 1,443 kilowatt-hours per year.



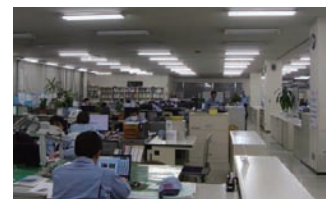
LED lighting in the corridor.

>>KOFU Plant

In the office wing, which is called the Techno Center, the old lights were replaced with 450 energy-efficient 18-Watt LED tube lights, lowering electricity usage by about 25,000 kilowatt-hours per year. The plant's exterior mercury lamps were also replaced with LED light fixtures, further reducing power consumption by approximately 9,000 kilowatt-hours per year.



An exterior LED light fixture.

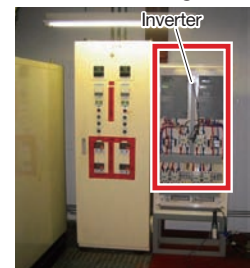


LED lighting in the office wing.

Installing inverters

Grinding operations, which require highly stable temperatures, are carried out in a temperature-controlled environment. At the KOFU Plant the ventilation equipment for this environment has been equipped with an inverter, which lowers the frequency to permit low-speed operation, thereby reducing power consumption. This has made it possible to maintain a constant temperature for grinding operations, allowing a variance of only 1°C, while also reducing electricity usage by roughly 20%, or 88,000 kilowatt-hours per year.

The use of an inverter not only allows the environment to rapidly reach the designated temperature, it also improves working conditions and helps maintain stable product quality.





Award for energy conservation

In 2011 the city of Hamamatsu established a program that recognizes efforts undertaken by private businesses to reduce energy consumption. In 2013 THK



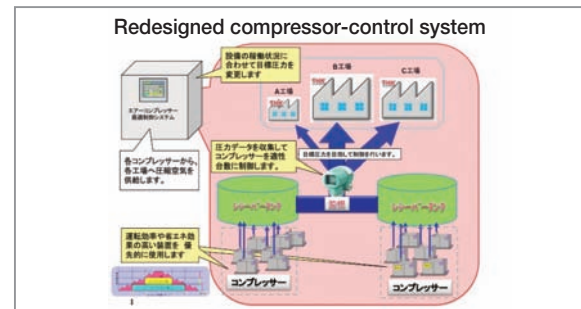
Hamamatsu Mayor Yasutomo Suzuki (center) poses with THK RHYTHM Director and Executive Vice Chairman Sawada (second from right) and other award recipients.

RHYTHM was awarded the highest honor, an "S Class" award, as one of 38 companies recognized for efforts in various categories. In March 2014 THK RHYTHM was selected as the recipient of the program's grand prize, which is awarded for the most outstanding effort by a business previously recognized by the program. The grand prize was presented to then President (now Director and Executive Vice Chairman) Sawada by Hamamatsu Mayor Yasutomo Suzuki.

THK RHYTHM has earned high praise for its use of solar panels, LED lighting, and other energy-saving devices, and for a variety of other efforts reflected in its signature slogan: "Turn it down, stop it, or turn it off."

Improved compressor-control system

The YAMAGATA Plant's system for centralized control of its air compressors has been modified and improved to provide a more stable supply of compressed air and reduce power consumption by optimizing its operations. The system settings have been redesigned to add scheduling functions and enable inverters to be used more effectively. A variety of operations can now be performed using new programs, and air pressure and airflow can be set at optimal levels. To date this has resulted in energy savings of around 10%, or 400,000 kilowatt-hours.



In their own words

Suwa's Hiroshi Shiratori: Using less energy



Hiroshi Shiratori, Sales Support Section Assistant Manager.

The SUWA Branch has been working to lower its electricity usage ever since it opened. When legislation governing energy conservation in Japan was revised in 2008, the branch made a united effort to curtail energy consumption. The first step was to determine our actual consumption level and then formulate a plan to lower it. Meetings were held to ascertain consumption figures,

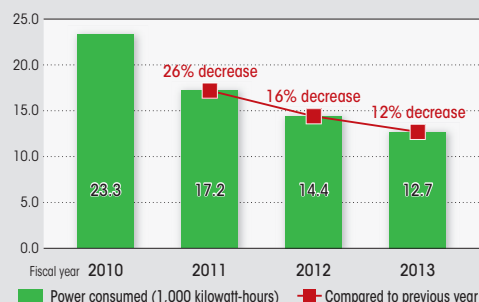
set annual targets, and assess the results of conservation measures. When we set our targets and devised energy-saving strategies, a set of management standards and list of electric-powered devices with a chart showing possible energy savings were also prepared, which was very helpful. We now have regular energy-saving measures in place, such as turning off computers, specifying temperatures for air-conditioning usage, and turning off lights.

In the summer of 2013 we wetted down the parking lots,

created "green curtains" for the windows, and drastically cut back on air-conditioning, which resulted in energy savings that actually exceeded our annual targets. We were able to comply fairly easily with the nationwide requirement to reduce energy use in the aftermath of the March 2011 disasters. We're going to keep on working to meet our targets and use less energy.



Trends in electric power consumption



Management of hazardous substances

PRTR-designated substances

In order to reduce the use of hazardous substances—substances that can adversely affect human health and damage ecosystems—THK continues to decrease its use of chemical substances subject to the PRTR Law (formally known as the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture), with the goal of lowering the volume of these substances by 3% annually. At THK this primarily means substances contained in gasoline and fuel oil. The target was achieved and surpassed in 2013. Total volume for the year was 52,212 kilograms, 2,175 kilograms less than the 2012 total of 54,386 kilograms, for a decrease of approximately 4%.

Substances subject to the PRTR Law (kg)

Substance	Amount used	Airborne emissions
Xylene	2,529	19
Toluene	5,943	3,357
Ethyl benzene	790	10
Benzene	194	21
Methyl naphthalene	38,357	181
Other	4,400	—
Total	52,212	3,590

Workshop on chemical substances

Last year, employees at THK Manufacturing of Europe who specialize in health, safety, and environmental issues conducted workshops focusing on chemical substances. Multiple sessions were held from July to October 2013, with all TME employees taking part. The presentations covered topics including the properties and correct handling of chemical substances from the standpoint of safety and the environment, as well as the European Union's requirements for classifying and labeling chemical substances, which were introduced in 2010.

These workshops have played an important role in disseminating accurate information about the safe handling of chemical substances and promoting greater environmental awareness among TME employees.



A TME workshop session on chemical substances.

In their own words

Yamaguchi's Masafumi Takata: Award-winning efforts



Masafumi Takata, Manager, Environmental Management Section, Manufacturing Promotion Department, YAMAGUCHI Plant.

The YAMAGUCHI Plant acquired ISO 14001 certification for environmental management in 2001 and OHSAS 18001 certification for its occupational health and safety management in 2010. In addition to maintaining safe working conditions, our employees have worked together to reduce energy consumption, achieve zero emissions, and properly manage hazardous substances.

To cut back on power consumption, we've switched from

mercury and fluorescent lights to LED lighting, installed energy-efficient heating and cooling systems, updated our power-receiving equipment, and installed inverters on our central coolant-control system. These efforts have enabled us to reduce annual power consumption by 1.5%, or 460,000 kilowatt-hours, which helped us win the Chugoku Bureau of Economy, Trade and Industry Director's Award for excellence in energy management in 2013.

We first achieved zero emissions back in 2004, recycling virtually all waste, and have maintained that status every year since then. Right now we're working on controlling the volume of primary and secondary materials and curtailing the production of waste materials. We're also focusing on proper management of the use of solvents and oils in production processes, in accordance with legal requirements. We're also emphasizing restricted use of boilers and forklifts and working to reduce the volume of PRTR-designated substances generated by gasoline and fuel oil combustion.



Green distribution

Overview

THK's Distribution Division, which operates facilities in various locations, continues to practice green distribution in an effort to reduce environmental impact throughout the distribution process. THK is implementing modal shifts, consolidating truck shipments, and pursuing a variety of other initiatives in accordance with two key principles of green distribution: reducing CO₂ emissions and making transport operations more efficient.

>> Bigger trucks, less energy

On high-volume delivery days, THK's CHUBU Distribution Center used to dispatch two delivery trucks, both loaded to capacity, to serve customers in Ibaraki Prefecture. By using a single large-scale truck instead, the Center has both achieved greater efficiency and reduced energy consumption by approximately 10% per truck.

>> Reusing packing crates

Products being shipped overseas from the TOKYO Distribution Center were formerly packed in wooden crates specially made to carry the specific amount of products shipped to each destination; this required a great deal of wood. By incorporating reusable heavy-duty cardboard boxes, the Center has reduced the amount of wood used by the equivalent of 80 crates and has significantly cut down on waste matter as well.



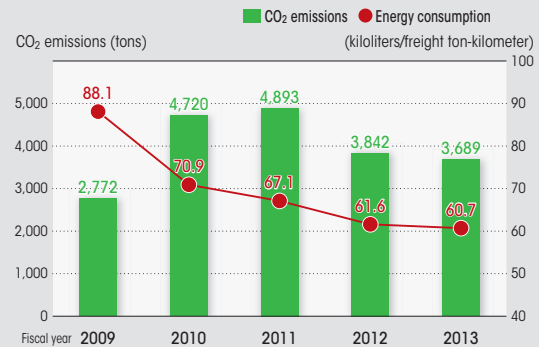
Reusable cardboard boxes, ready for shipping.

Transport-related CO₂ emissions

CO₂ emissions generated by the shipping of products and parts declined from 3,842 tons in 2012 to 3,689 tons in 2013, a decrease of 153 tons, or approximately 4%. In addition, basic-unit energy consumption (the volume of energy consumed divided by ton-kilometers of freight) declined by roughly 1.4%, from 61.6 to 60.7. The production volume for 2013 was higher than for 2012, but transport-related energy consumption was lower, due to a modal shift toward greater reliance on ships and railways, improved load ratios for trucks, more consolidated shipments, and less frequent

shipping, thanks to cooperation from customers. THK will keep working to make its shipping operations more efficient and reduce transport-related CO₂ emissions.

Transport-related CO₂ emissions and basic-unit energy consumption (THK only)



Reductions in packing materials

With the help of its customers, the MIE Plant has successfully redeployed used heavy-duty cardboard boxes as returnable containers. In the past, each box contained only one set of products, but ten sets are now packed inside each box. In addition to virtually eliminating the need for new boxes, this has also greatly reduced the use of cushioning material and packing tape.

The switch to returnable containers is contributing to an all-out effort to cut back on packing and cushioning materials made from plastic and other such substances. The plant has eliminated the use of bubble wrap and fastening tape and developed partitions that eliminate the need to insert cushioning between products. In this way, the MIE Plant has reduced the volume of waste by nearly half.



One set per container.



Ten sets per container.



Bubble wrap and fastening tape.



Boxes fitted with partitions.

As I read this year's *CSR Report*, I had a vivid sense of THK's vitality, demonstrated in its vigorous pursuit of global expansion and forays into new fields of endeavor, such as robotic technology, and also of its enthusiastic determination to contribute to society, exemplified by its environmental management efforts and involvement with the communities where it does business. I went through previous editions of the *CSR Report* as well, and it seems to me there's been a consistent emphasis on people. THK has worked for many years to create a system that attracts highly capable people, educates them to respond to the expectations of customers, collaborators, and shareholders, and helps ensure that the company will grow together with the community. This, I believe, has spawned a culture that provides vitality and a passionate commitment to society.

The other day I had the opportunity tour THK's YAMAGUCHI Plant. I saw a double-arm robot being utilized on a production line, and I watched busy employees stop working long enough to doff their hats and offer a warm welcome to visitors. It felt as though I was observing the actual embodiment of THK's corporate philosophy.

This year's *CSR Report* begins with an essay by THK President Teramachi discussing the contributions THK makes to society through its products. It includes a feature section, an examination of the management system, a section on community involvement, and a section on environmental activities. All of these are concise and well organized. The feature section includes subsections on applications for THK products in devices used in medicine and healthcare, experimental wind turbines developed by THK, and hydroelectric power generation in Taiwan. Medical care and healthcare is an important issue not just for Japan but for the entire international community. Machine tools and FA mechanisms contribute indirectly to progress in medicine and healthcare, of course. The work of developing devices needed in this field and promptly adapting them to meet the customer's specific needs not only contributes to the betterment of society, it also helps encourage the

employees involved to continue this important work. While this field is a distinct departure from machine tools and FA devices, the convenience offered by **Seed Solutions** wireless controls, the strength and high quality of THK components, and THK's ability to quickly modify its products to suit specific needs are all praiseworthy aspects of the use of THK products in medicine and healthcare. I understand why they are in demand. I hope that, by adapting and customizing individual products, THK will be able to identify needs that extend across a variety of new fields and develop new products with a broad range of applications.

To assist in the effort to curtail global warming, THK is steadily improving the efficiency of the wind turbines it has developed. By actually using its turbines to provide power for lights at the SENDAI Plant, THK not only puts the results of these efforts to practical use, it also enables people to physically experience those results. This should encourage further efforts throughout the company to reduce energy consumption and curb global warming. As the discussion of improvement efforts at the YAMAGUCHI Plant shows, THK has created an environment conducive to new ideas and suggestions for improvements. I believe that THK's ability to accept and act on such suggestions and its willingness to evaluate the outcome of its efforts and report on them in the pages of the *CSR Report* and elsewhere provide the driving force for its forays into new fields.

The advance of globalization is giving rise to increasingly intense competition. Businesses have to respond to customer needs with both diligence and flexibility, and they must also be aware of global trends and come up with original new technology to quickly enter new areas that hold the promise of growth. I feel more action is needed to address customer needs and emphasize the special qualities and strengths of THK products and services. I hope THK will develop products that meet the world's highest standards for quality, thereby setting itself apart from competitors, and disseminate its proud culture of societal contributions throughout the world.



Mamoru Mitsuishi
Professor and Doctor of Engineering, Department of Mechanical Engineering, School of Engineering, and Dean of the School of Engineering, the University of Tokyo

Curriculum Vitae:

Awarded Bachelor of Science in Physics and Bachelor of Engineering in Mechanical Engineering from the University of Tokyo in 1979 and 1981, respectively. Awarded Doctor in Mechanical Engineering from the University of Tokyo in 1986; appointed Lecturer in the Department of Engineering Synthesis, School of Engineering, the University of Tokyo in the same year. Visiting researcher at the Fraunhofer Institute for Production Technique and Automation in Stuttgart, Germany, from 1987 to 1988. Appointed Associate Professor in the same department in 1989. Appointed Professor in the same department in 1999. Also attached to the Department of Bioengineering, the University of Tokyo, since 2006. Became Professor in the Department of Mechanical Engineering, School of Engineering, the University of Tokyo (because of a departmental reorganization) in 2009. Member of the University of Tokyo Education and Research Council since 2013. Appointed Dean of the School of Engineering, the University of Tokyo, in 2014.

Fields of research:

Biomedical robotics, including computer-integrated surgical systems; Production engineering, including bio-manufacturing and multi-sensor-integrated intelligent manufacturing systems.

Affiliations and awards:

Fellow, council member, and Chairman of the Machine Tool Division, International Academy for Production Engineering (CIRP); Fellow, Japan Society of Mechanical Engineering (JSME), and head of JSME Research Committee 266 Next-generation Machine Tools Section; Fellow, Robotics Society of Japan; Director, Japan Society of Computer Aided Surgery; recipient, JSME Manufacturing & Machine Tool Division Lifetime Achievement Award; recipient, JSME Robotics and Mechatronics Division Academic Achievement Award.

Postscript

It has been our pleasure to present this, the eighth annual *THK CSR Report*.

This year's report offers a look at some of the ways in which THK products are being used in the fields of medical care and healthcare, which are becoming increasingly important in light of the aging of Japan's population. The feature section, which includes interviews with customers concerning **Seed Solutions** products and the use of THK technology in new types of wheelchairs and medical instruments, illuminates the breadth and diversity of THK products. The feature section also includes articles on THK's role in reducing energy consumption through product applications that enable greater use of solar and wind power.

As in other years, the report examines THK's corporate governance system, support for personal and career development among employees, positive relationships with local communities, and efforts to alleviate global warming.

Once again, wherever possible we have included comments and testimony by people who are connected to THK in one way or another.

The entire THK Group will continue to take positive action to honor its corporate social responsibilities and takes pride in presenting the results to you, the reader. We're interested in your views and impressions of this report. Your comments will provide valuable feedback to guide our future CSR efforts and help us in preparing our next report. Please take the time to fill out the enclosed questionnaire.

Thank you.

CSR Report Project Secretariat

P.S. Our next report is scheduled for September 2015.

THK CO., LTD.

3-11-6 Nishi-Gotanda, Shinagawa-ku
Tokyo, Japan 141-8503
Phone +81-3-5434-0300 Fax +81-3-5434-0315
www.thk.com

