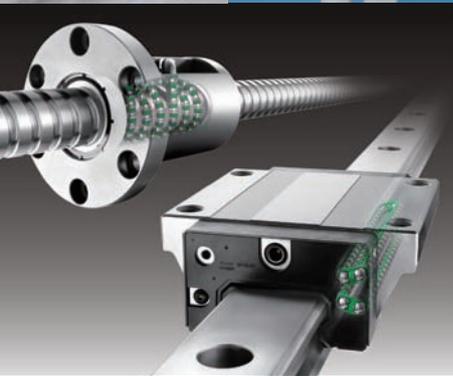
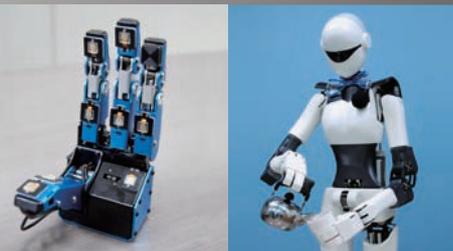
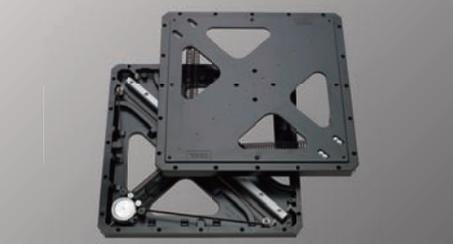




# THK CSR Report

## 2015/2016



## 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 three-part feature section examining THK's efforts to honor its corporate social responsibilities in a number of key areas. The first part looks at ways in which THK technology is used to protect property and vital assets as Japan marks the twentieth anniversary of the Great Hanshin-Awaji Earthquake. The second part focuses on an experiment in hydroelectric power generation using irrigation canals, intended as a contribution to regional revitalization. The third part examines efforts by THK RHYTHM to help combat global warming, an initiative that won the firm a commendation from Japan's Minister of the Environment.

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 2014, 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.



# THK CSR Report 2015/2016

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### Reporting period

This report focuses mainly on the period from April 1, 2014, through March 31, 2015, 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" (2012).

### Please direct inquiries to:

**THK Risk Management Division**  
**Phone: +81-3-5434-0569**  
**Fax: +81-3-6691-5250**

# Two-way communication between THK and its customers

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### Economic climate

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In 2014 the global economy supported a favorable business climate, driven by continued low-interest policies in the United States, and sustained the ongoing gentle recovery. In Japan popular opposition to another increase in the consumption tax rate resulted in the postponement of a second increase by eighteen months. In addition, the Bank of Japan conducted a large-scale buy-back of government bonds, leading to the easing of credit, and we have finally begun to see signs of a recovery in the domestic economy. In Europe, the perception of a letup in the financial crisis in Greece offered a glimpse of recovery. In China, however, amid a currency glut and a deflationary spiral resulting from excess production capacity, a sluggish business climate has set in.

Meanwhile, THK has continued to pursue a growth strategy aimed at augmenting its markets through global expansion and entry into new business areas.

Manufacturers who have opened factories in developing countries are now seeking ways to further automate those operations. As part of its global expansion effort, THK is working to expand its sales networks in order to gain better access to the factory-automation market in the developing world. On the sales side, we have initiated Japanese-language-based ASEAN Customer Support services to assist Japanese firms who have set up operations in Southeast Asia and are striving to providing on-site support wherever possible. We have also established three new sales branches in India. On the production side, we have built a new plant in China to increase productivity at DALIAN THK and have successfully moved some of our operations there.

The effort to enter into new business areas is an initiative aimed at expanding sales and developing markets in areas such as renewable energy, aeronautics, robotics, construction equipment, and care-giving and rehabilitation services. In the field of renewable energy, THK is utilizing operational data from wind-powered and hydroelectric generating de-

vices to develop more suitable components, including a low-torque shaft unit for wind-powered generators, which is now in production. We have conducted tests with hydroelectric generators overseas and have now begun testing such devices in agricultural irrigation canals here in Japan.

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### The importance of two-way communication

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The midterm business plan issued last year called for an emphasis on strategies aimed at achieving growth. The aforementioned global expansion effort and effort to enter into new areas of business are our two fundamental growth strategies. For these efforts to succeed, it is essential that the concerns of customers all over the world are accurately communicated to THK and that communications from THK are faithfully and correctly conveyed to all our customers. To that end we have beefed up our sales staff to ensure more face-to-face interaction with customers and have worked to enhance communications by improving distribution networks, collecting and using relevant data, and reaching people via the Internet, newspapers and magazines, local exhibitions, and direct mail.

THK's corporate philosophy sets forth the challenge of providing innovative products to the world and generating new trends to contribute to creation of an affluent society. To embrace this vision, we strive to identify and fully understand our customers' problems and needs and gather all the relevant information available, including complaints. We also present information and ideas to our customers, recommend original applications and quality-related proposals, and offer products and innovations to ensure that the client's machinery and equipment will provide high added value.

To be able to rapidly comply with the need for the right product at the right price, in the right quantity and at the right

time and place, THK has established a unified production and sales system covering our four principal territories: Japan, the Americas, Europe, and the rest of Asia. In this way we can create product-delivery systems tailored to customer needs and designed to dramatically enhance the competitiveness of the customer's equipment and manufacturing operations.

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### In closing

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THK has established a basic policy 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.

As a creative, innovative enterprise, THK strives to increase its corporate value by developing original products and manufacturing technology. We conduct our business operations in a safe and fair manner, foster positive relationships with our partner businesses and other stakeholders, support sustainable environmental conservation, disclose information in a timely and appropriate manner, and make every effort to fulfill our responsibilities as a good corporate citizen. We thank all THK customers for their loyal patronage. We will continue to refine our creativity and provide high-quality products and high-level services.

This year's edition of the *THK CSR Report* presents illustrations of ways in which THK contributes to society through its principal business pursuits, in accordance with our basic policy, and also offers examples of efforts to expand into new areas of business. I hope you find this report enlightening.



**Akihiro Teramachi**  
President and CEO  
THK CO., LTD.

寺崎 彰 博

# 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 development

## THK's global network



### China

Sales offices	36
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.



### 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

France	1	Ireland	1
--------	---	---------	---

#### 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.

### Elsewhere in Asia

#### Sales offices

Taiwan	3	India	4
Singapore	1	South Korea	13
Thailand	1		

#### Production sites

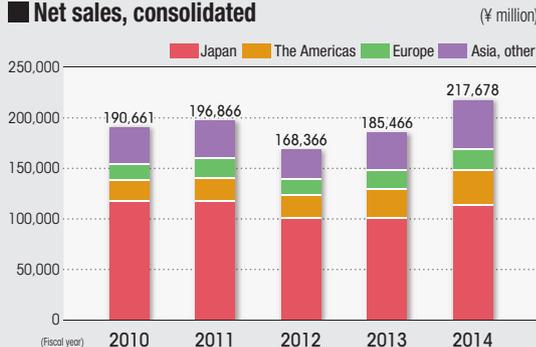
South Korea	4	Vietnam	1
Thailand	1	Malaysia	1

#### THK Group companies

- THK TAIWAN CO., LTD.
- 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.\*

\*Affiliate

## Net sales, consolidated



## Operating income, consolidated



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 9,494\*  
 Employees, non-consolidated 3,353\*  
 Consolidated subsidiaries 6 in Japan; 24 overseas\*

\*As of March 31, 2015

### The Americas

#### Sales offices

USA	7	Brazil	1
Canada	1		

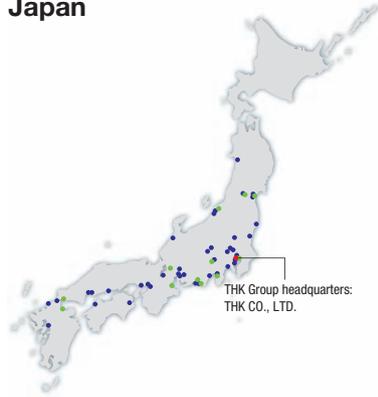
#### Production sites

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 Brasil INDUSTRIA E COMERCIO LTDA

### Japan



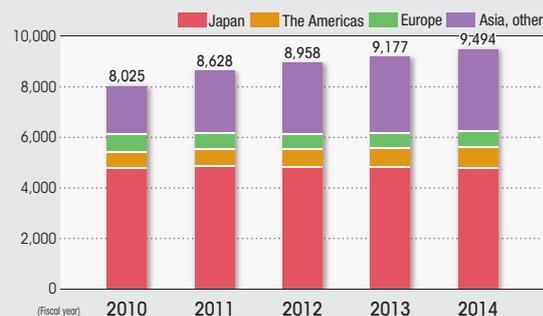
Sales offices	47
Production sites	12
Development facilities	1
Distribution sites	3

#### THK Group companies

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

● Sales office ● Production site

### Employees, consolidated



### THK personnel (as of March 31, 2015)

Region	Male	Female	Total
Japan	4,125	659	4,784
The Americas	595	261	856
Europe	404	194	598
Asia, other	2,394	862	3,256
<b>Total</b>	<b>7,518</b>	<b>1,976</b>	<b>9,494</b>

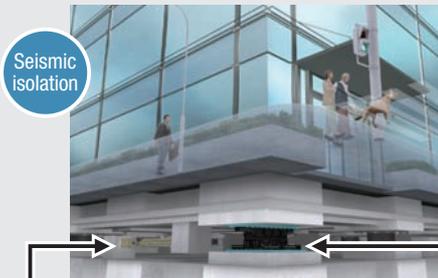
# Feature section

## THK Seismic Isolation Systems

# Providing the optimal system to protect valuable property

As Japan marks the twentieth year since the Great Hanshin-Awaji Earthquake, amid lingering apprehension about the ability to withstand such vast destruction, there is renewed interest in earthquake preparedness. In the interest of safeguarding lives and valuable property as well as to ensure business continuity, increasing attention is being paid to seismic isolation systems that protect office buildings, hospitals, dormitories, government buildings, public facilities, and private homes, as well as to seismic isolation devices that provide local protection for server computer, artwork, and measuring instruments and other high-precision devices. THK, determined to offer the most suitable and reliable product for each situation, is proud to help provide protection from menacing earthquakes. Below we offer a look at these types of THK products and their uses.

### Seismic isolation and vibration control for buildings

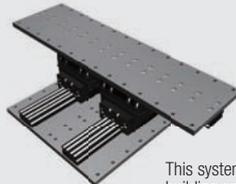


RDT viscous damping system



Deployed in combination with roller bearings, this device absorbs seismic energy.

CLB linear guide system



This system supports the building and dissipates seismic vibrations from any direction.



Vibration control

RDT viscous damping system used for vibration control



This device, which can be installed on the inside or outside of a building, absorbs seismic energy and suppresses building vibrations.

### Seismic isolation for devices



TSG seismic isolation modules



The modules can be freely combined to accommodate a diverse range of loads and can also be used to isolate the floor itself.



TSD seismic isolation table



The seismic isolation table can simply be placed on the floor and requires no special installation.

## Meiwa Hospital

Nishinomiya, Hyogo Prefecture

### Attracted by reliable performance backed up by actual testing

Information technology has spread throughout the society we live in. In recent years the medical industry has rapidly incorporated electronic information systems. We now have electronic health records and other kinds of medical information systems that contain all sorts of information, from CT and MRI images and treatment plans for incoming patients to explanatory documents and consent forms for surgeries, and the enormous volumes of data collected are stored on server computers. If the servers were destroyed in a big earthquake or some other disaster, it's no exaggeration to say that virtually all medical activity would come to a halt. Not only that, the data in an electronic health record is important private information belonging to the patient, and we have a responsibility to properly protect it. Another point is that test results and images have to be provided to enable a patient to give informed consent for an operation, and if something were to go wrong the hospital could be ordered by a court to produce them. As a medical institution providing healthcare for this area, we have to do whatever



Akinobu Kitagawa, Assistant Manager, Information Service Division.

is needed to protect our servers, for our patients' sake and to ensure sound management of the hospital's own operations.

Here in Nishinomiya we still have painful memories of the Great Hanshin-Awaji Earthquake, which occurred two years ago. Given the fact that a series of major earthquakes have followed, including the Chuetsu earthquake and the Great East Japan Earthquake, we really have to come to terms with the fact that major earthquakes are unavoidable.

We selected THK's seismic isolation system to protect our servers because they showed us the results of tests, performed using the same seismic waves as those recorded during the Great East Japan Earthquake, in which server computers were clearly protected. It took very little time from the signing of the contract to delivery, and the installation was done quite skillfully. Everything went smoothly, from the protective measures taken at the time of delivery and the pre-installation preparations to the installation work itself and the cleanup. We really appreciated the fact the work was done so well in the limited time available.

I used to jump every time the ground shook a little and ask everyone how big the tremor was. Now that I've seen the data proving that THK's seismic isolation system can protect against a quake as powerful as the Great East Japan Earthquake, I feel relieved.

## Kyoudou Densan Center

Hachinohe, Aomori Prefecture

### Strong protection, simple setup

Our company develops logistics systems and manages operations for hardware stores and supermarkets. In logistics systems, rapid response is extremely important. When products are sorted, for instance, split-second timing is required. Cloud-computing is all the rage nowadays, but it's very hard to achieve a rapid response with cloud-computing alone. Server computers, the mainstay of our business, are therefore absolutely crucial.

During the 1994 offshore Sanriku earthquake, a major seismic event, our servers survived but had to endure considerable displacement, and we were worried about LAN cables being severed and power cords being unplugged. That earthquake motivated us to start considering seismic isolation, and when we upgraded our servers we decided to incorporate it—not the THK seismic isolation system, another company's products.

After the Great East Japan Earthquake struck we brought in backup servers, and this time we decided to use THK's seismic isolation devices. At that time we had an employee



Tsuyoshi Matsumura, Manager.

who was familiar with THK and sang their praises, assuring us that their products were unquestionably reliable. He had attended an exhibition where he observed the THK device in action and saw for himself that it was effective even against severe temblors of the type that occurred during the Great East Japan Earthquake. There was nothing but a bowl on first seismic isolation device we used, which didn't look as though it would stand up to strong shaking. In addition, THK's device came in a variety of sizes and could be freely combined. The fact that we could easily set it up ourselves was a big reason for adopting the THK system.

In mid-February there was a level-four earthquake off the coast of northeastern Japan that registered 6.9 at its epicenter, but it caused no problems for us whatsoever. I've never experienced an earthquake more powerful than that one, but I'm not worried at all. In mid-May, after a strong early-morning earthquake, we got a call from THK asking if we had experienced any problems with our servers. I appreciated that. We have no plans to install more servers any time soon, but when the time comes I'll get in touch with THK, because I know we can count on them.



## Fujitsu Numazu Plant

Numazu, Shizuoka Prefecture

### Inspired by a compelling presentation

The Numazu Plant, a key production facility that also plays a major role in the development of software for Fujitsu's large-scale computers and server products, has a computer center where development data and other information is stored. Precious intellectual assets belonging to the Fujitsu group are there, including some from overseas. We have to maintain conditions there to ensure secure, reliable, and stable daily operations.

The Suruga Bay area, where the Numazu Plant is located, is part of the region that has been at risk from a major Tokai earthquake or Tonankai earthquake since long before the Great East Japan Earthquake. Based on the realization that it would be extremely difficult to recover if our development assets and data were lost, we installed seismic isolation systems at group companies in 2008 to help ensure business continuity and a higher level of reliability.

The Cloud Services Department has customer service engineers available at all times at the center to rapidly respond to the various needs that arise. One of them told us about THK's unprecedented seismic isolation technology. This happened at a time when the topic of business continuity was getting a lot of attention, and we were also engaged in facility planning, so we invited people from THK to come to the plant and explain their products.

The presentation was very convincing. They didn't put the focus on paperwork. After a brief introduction they asked about our situation, and after watching a video they determined the actual motion that would occur, using a miniature model made of clear plastic. We could see that our existing



(From left) Toru Takahashi, Team Leader, and Naoki Gunji, Manager, both of the Software Development Cloud Service Department, Software Development Technologies Division, Software Technologies Unit.

Visitors to the Fujitsu Numazu Plant's Cloud Service Department can see THK's seismic isolation system at work by moving the rack and observing the way the system responds (reservation required).

equipment would not be adequate if an unexpectedly intense inland earthquake were to strike. We were convinced because we could see it and even feel it, which doesn't happen very often.

At the time it didn't feel at all as though THK was trying to sell us something, although we still deal with the same people. They simply explained the technology that THK used for seismic isolation, with no mention of any rival products. They just said that if we accepted their proposal they would take care of us. We had high hopes for their system and really wanted to try it.

Of course, after that our bosses had to be convinced. We explained that THK's system would perform better and be more reliable than our existing seismic isolation arrangement. The miniature model that THK had loaned us was very persuasive.

If our servers were damaged or destroyed in a disaster it would still be possible to restore conditions using backup computers, but in the worst case, if our development data were lost, all such efforts would be in vain. For the sake of business continuity we have a comprehensive system in place, including backup computers at separate locations. Even so, by installing THK's seismic isolation devices, I would like to think we have taken sufficient action to safeguard a very important facility.

# Feature section

## THK's water-powered generating system

# Carving out a new future with technology and imagination

Light, heat, and motion, from flowing water

THK entered the field of wind-powered generation in 2009 when it launched an internal project aimed at developing key components for wind turbines. Exploring new uses for the technology developed in that initiative, THK has now applied it to water-powered generation. Following an initial test in Taiwan in 2012, THK tested its new system at the Kanagawa Prefecture Sagami River Left Bank Land Improvement District in 2014, continuing its campaign to help unleash the vast potential of renewable energy.

### THK technology stands out

The use of irrigation canals for water-powered generation is relatively new. There are strict limitations on the extent to which irrigation canals can be modified, since any obstruction of the water flow would have a major negative impact on the crop being watered. For conventional water-powered generation, falling water must be devised, which enables large volumes of power to be generated but requires major construction work that often costs at least ten times as much as the generating equipment itself.

THK's system, which generates electricity by means of a water wheel alone, costs relatively little and neither damages nor obstructs irrigation canals. Since it doesn't require damming the flow to create falling water, there's little likelihood of flooding, and refuse and other floating matter can easily be cleared to permit stable operation.

### Imaginative technology contributes to revitalization

With a water-powered generating system that does not rely on falling water, power is generated most efficiently in a stable environment: a constant volume of water flowing at a constant speed. That's why THK decided to focus on irrigation canals.

Farming is dependent on rain. Droughts and poor harvests take their toll, and the incomes of people who work in agriculture are dependant on climatic conditions. THK is both pursuing growth in the field of renewable energy and trying to help people involved in agriculture achieve more stable incomes, thereby contributing to the "regional revitalization" movement. With the cooperation of the Kanagawa Prefecture Sagami River Left Bank Land Improvement District, a two-month experiment was carried out in 2014 to verify the functions of THK's water-powered generating system and reveal any challenges posed by agricultural irrigation canals in Japan. The results demonstrated that no modifications to existing irrigation canals are required, that the system will not obstruct water flow, and that irrigation canals in Japan are capable of generating a stable supply of electric power.



Testing a water-powered generator.

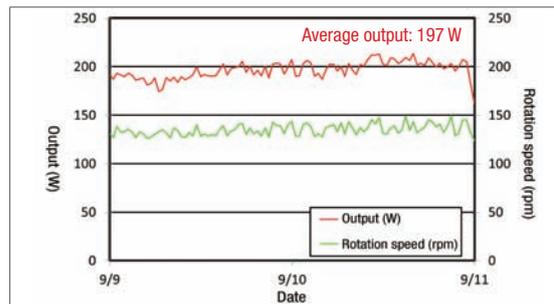
### Trial use of water-powered generator in agricultural irrigation canal

System in place: August 21 to October 3, 2014  
 System in operation: August 26 to September 24, 2014  
 Location: Near Iriya 2-chome, Zama, Kanagawa Prefecture

Water intake area (m <sup>2</sup> )	0.3		
Blade length (m)	0.5		
Blade rotation diameter (m)	0.6		
Flow rate (m/s)	1.0	1.5	2.0
Output (kW)	0.03	0.1	0.24
Monthly output (kWh/mo.) (during 720 hours of operation)	22	73	173

Trial unit specifications

Overall efficiency:  $\eta = 0.2$



## Kanagawa Prefecture Sagami River Left Bank Land Improvement District

Ebina, Kanagawa Prefecture

### The great potential of renewable energy is worth the cost

As someone who works with irrigation, I've always thought people should be more aware of the importance of irrigation canals, and not just because they carry water, which is a source of life. I'm glad to have had the chance to help explore their potential through THK's project, because I think it will help the public better understand the ways in which canals can help improve living conditions.

When I got my first look at THK's water-powered generator, I saw right away that it wouldn't damage the canal or anything else, since the water wheel is the only thing that goes into the water. I knew this would be a valuable experiment. Ordinarily, hydroelectric projects require major construction work, so the simple design of THK's system was very appealing.

I work in agriculture, so I have a basic interest in protecting the environment. For the sake of the future, I feel we should be working hard to utilize renewable energy as a countermeasure against global warming, even if it's a little costly at present. Unlike solar and wind power, water-powered generation can be available 24 hours a day, provided you have a steady flow, so it has great potential as a source of renewable energy. If we put it to practical use, it could be used to run the systems that control automatic sluice gates, which we already have, so the power generated wouldn't necessarily just be sold off but could actually serve as an energy source on its own.

Agriculture and industry are two separate fields, of course, but both are devoted to producing things, so in that sense



Kazuhiro Shiowaki, engineer.

they're similar. I hope THK will put its industrial insights to good use in relation to agriculture and come up with some imaginative new ideas and technology. I really hope the system that was tested in 2015 will be perfected and put on the market. I'd like to see THK continue to develop ways to take advantage of the latent benefits of irrigation canals, and I hope people will learn about its efforts so far.

#### Kanagawa Prefecture Sagami River Left Bank Land Improvement District

In 1930 the Sagami River Left Bank Water Users Association was established for the purpose of providing canals and waste water treatment facilities to irrigate more than 2,000 hectares of paddies located in what is now the southern part of the city of Sagami-hara and the cities of Zama, Ebina, Fujisawa, and Chigasaki, as well as the town of Samukawa. In 1949, a new law was enacted reestablishing the organization as the Kanagawa Prefecture Sagami River Left Bank Land Improvement District.



# Feature section

THK RHYTHM HAMAMATSU Plant honored for efforts to combat global warming

## Tireless efforts to reduce environmental impact

Japanese manufacturers are considered to be among the world's best at reducing environmental impact, confronting the task with passionate effort and advanced technology. In the workplace this goal is relentlessly pursued at a very high level. This type of tireless dedication to environmental protection earned THK RHYTHM's HAMAMATSU Plant a commendation from Japan's Minister of the Environment for efforts to counteract global warming in 2014.



### Reducing environmental impact and raising employee awareness

THK RHYTHM's energy-conservation efforts, which include the use of easy-to-remember slogans, help ensure that employees faithfully turn off lights and machines when they are not needed. This has been accomplished not through verbal orders but by relocating power switches and incorporating measures that enable employees to see exactly how much power is being used at any given time, which helps reduce waste throughout the plant.

- **Raising awareness** (1) Turn off power to equipment when not in use.
- (2) Turn off air compressors when not in use.
- (3) Turn off lights when not in use.

➔ Constant awareness ensures energy savings.

### Measures taken to reduce wasted energy ➔ For employees and equipment.



Relocated switches make it easier to turn off power to machinery.



LED lights on the production line are equipped with motion sensors.



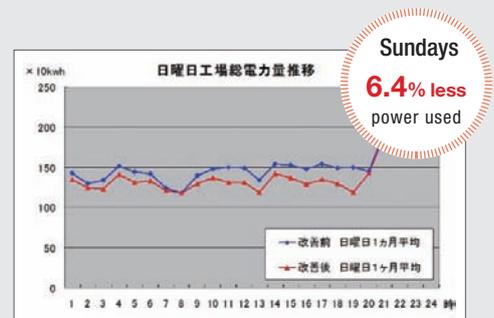
Switches that should remain on are clearly marked with signs.



Employees can see how much air and power are being used.

### Results

➔ A 2.4% energy savings on weekdays and a bigger reduction in power usage on weekends.

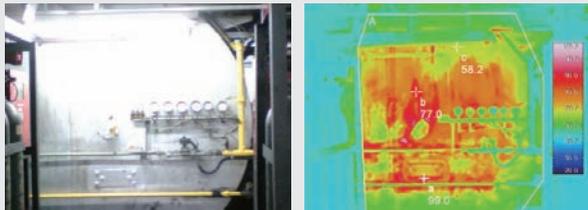


< Objective of energy-saving efforts >

Attitudes and conditions conducive to common-sense energy conservation.

### Production line checkup

As part of energy-conservation efforts, every year one production line undergoes an energy checkup. Over the course of four days, high-precision measuring equipment is used to provide a complete assessment of the line's energy consumption. The resulting data is used to identify focal points for further energy-saving efforts, leading to greater efficiency and reduced environmental impact.



An image used to assess heat loss.

### Promoting energy conservation in the community

The HAMAMATSU Plant contributes articles to industry publications and makes other information available to apprise the community and local businesses about its efforts to reduce environmental impact.

#### Informational activities in fiscal 2014

October 2014	Presentation on rationalizing energy usage, attended by about 50 people representing businesses in the Hamamatsu area and western Shizuoka Prefecture.
December 2014	Seminar on combating global warming, attended by about 50 people representing businesses in Hamamatsu and western Shizuoka Prefecture.
January 2015	Conducted a tour of its energy-saving production facilities for six visitors from the Univance Corporation.
March 2015	Conducted a presentation on energy-conservation efforts at a METI briefing on revised energy-conservation laws, attended by about 500 people representing firms in the Kanto district.

## Notable achievement in 2014

### Commendation for efforts to combat global warming

Since 1998, as part of efforts by Japan's Ministry of the Environment to encourage countermeasures against global warming, the Minister of the Environment has presented annual commendations to honor individuals and organizations for notable achievements in the campaign to confront global warming. Having been nominated last year by the city of Hamamatsu, THK RHYTHM became the recipient of such a commendation for practical measures and consciousness-raising activities in 2014.

THK RHYTHM, which has conducted a variety of energy-conservation initiatives at its production facilities, won praise for introducing high-efficiency equipment and being a green energy producer, as well as for activities designed to keep the community informed about environmental efforts.



The December 2014 award ceremony, attended by President Hitoshi Muramoto.



#### In their own words: Honored to be recognized

Masayoshi Murakami (Manager, Manufacturing engineering section, THK RHYTHM HAMAMATSU Plant)

We consider a commendation for energy conservation to be a very high honor. It will motivate the employees at the HAMAMATSU Plant to work even harder in the future. This is an affirmation of our positive efforts to reduce the plant's environmental impact, and it should be beneficial for public relations, too. We're going to continue our efforts and set our sights on another award.



# 3 major areas of endeavor

## 1

### Management system

➔ Page 17



#### In focus in 2014

- Compliance training in Singapore
- Quality assurance system

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.

## 2

### Involvement in society

➔ Page 20



#### In focus in 2014

- Fourth straight victory at Abilympics
- Scholarship fund
- Improved childcare leave system

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.

## 3

### Harmony with the environment

➔ Page 30



#### In focus in 2014

- Environmentally friendly from the start
- Award for energy conservation
- Improvements at the MIE Plant

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.

# Corporate governance

## Governance system

Fundamentally, THK views corporate governance as a means of making management transparent to shareholders and ensuring appropriate and efficient operations, in order to maximize shareholder returns.

THK's management structure is founded on two essential bodies: the Board of Directors, which includes outside directors, and Board of Auditors, which includes outside auditors. As of June 21, 2014, THK has reduced the membership of the Board of Directors and introduced a new system of executive officers in order to improve the Board's oversight capabilities, clarify executive roles and responsibilities, and enable more rapid decision-making and executive action.

The Board of Directors has nine members, including two outside directors. The Board, consisting of the president and other executives, outside directors, and directors who concurrently serve in other positions, makes decisions on important management matters and oversees the directors and executives in the performance of their duties. The inclusion of two independent outside directors reflects a determination to improve managerial oversight and ensure that the management of THK's operations remains impartial, appropriate, and legally sound.

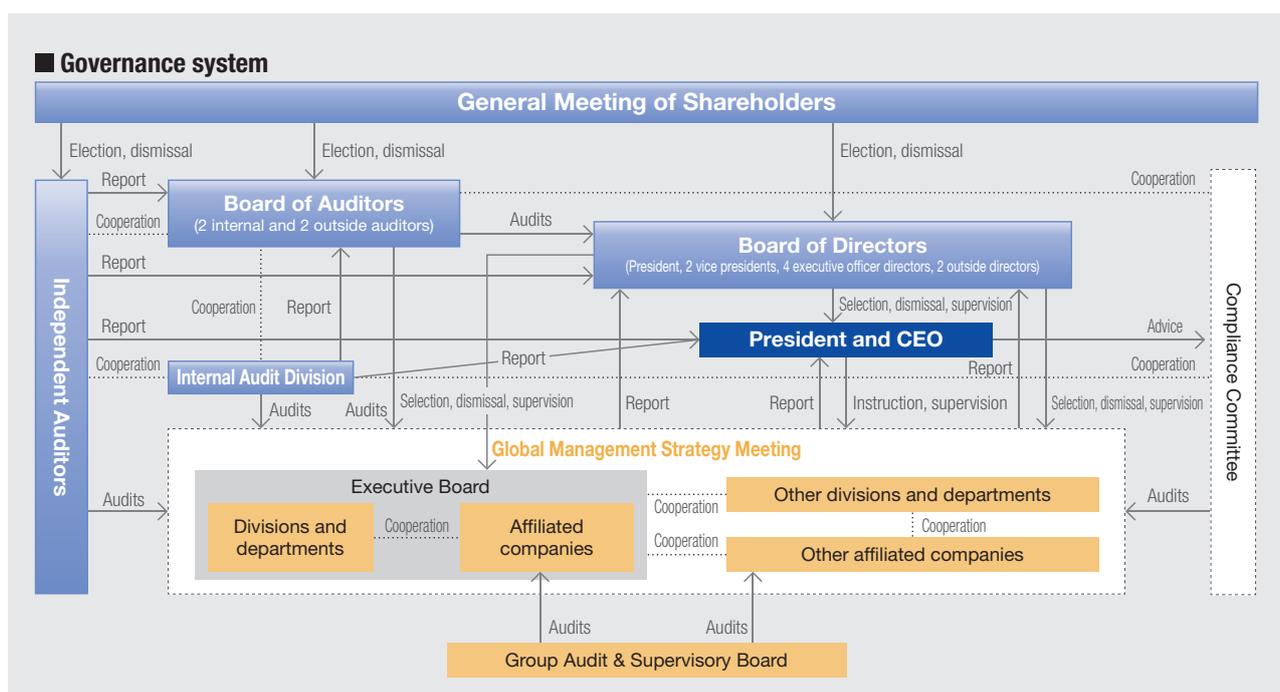
To help ensure timely and appropriate decision-making, the Board of Directors contacts the relevant executives and departments to obtain the information it needs in order to hold informed discussions and, whenever necessary, ob-

tains expert guidance from lawyers, accountants, and other third parties. The members of the Board, including the independent outside directors, hold discussions based on information acquired and make decisions on issues critical to corporate management. THK is striving to improve managerial oversight by ensuring that the guidance from lawyers, accountants, and other third-party experts is reflected in the Board's decision-making process and by ensuring that the views of knowledgeable and well-experienced outside directors are reflected in the management of business operations.

## Security-related trade controls

In keeping with its policy of increasing overseas sales and sales in new areas of business, THK provides training concerning security-related trade controls on both goods and technology for its engineering and sales divisions in Japan as well as for overseas subsidiaries, to help ensure that no violations of the Foreign Exchange and Foreign Trade Control Law occur in dealings with overseas customers or the nations from which exports are dispatched. If a transaction raises particular concerns, THK conducts a careful inquiry in cooperation with Japan's Ministry of Economy, Trade and Industry.

THK will continue to improve customer service and conduct its operations in compliance with all legal obligations.

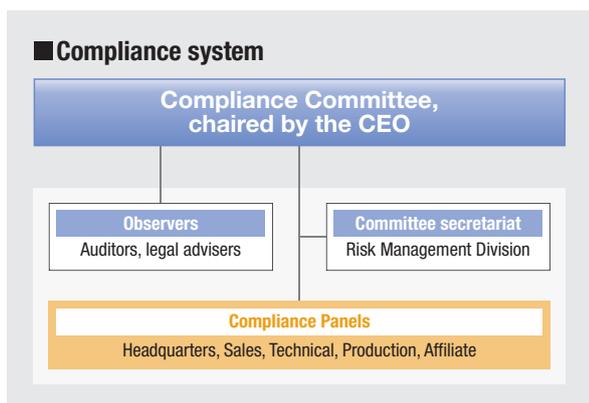


# Compliance

## Compliance system

**Compliance Committee** 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, deliberates and reports on any legal infractions that occur, and oversees the internal response. The committee consults with legal advisers who attend its meetings as observers, to ensure that the response is appropriate and legally sound.

**Compliance Panels** Each business division has its own Compliance Panel, all of which report to the Compliance Committee. Panel members from every region and location help ensure observance of the compliance system at the locations they represent. They organize voluntary workshops, act as liaisons, and offer guidance to help resolve any compliance-related problems that may arise.



**THK Helpline** THK also operates 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. Infractions can be reported by telephone or e-mail or by contacting the company's legal advisers, who provide an external channel for such notifications. In 2014 seven reports were received via the helpline, all of which were addressed in cooperation with the departments involved.

## Education and training

**Compliance-related training** In December 2014 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 concerned with liability and traffic accidents, excessive work hours and corporate responsibility, and laws governing subcontracting and product liability, to attain a better understanding of the issues involved.



Compliance Panel training session.

**Training in Singapore** In December 2014 eleven employees of THK LM SYSTEM Pte. Ltd., located in Singapore, took part in a workshop on achieving growth by earning the trust of THK's stakeholders. The participants, both locally hired employees and employees from Japan, also reviewed case studies involving illegal actions occurring in everyday situations. A number of participants commented that the presentation effectively conveyed the importance of corporate social responsibility, especially as regards the proper handling of sensitive information and the harm that can result from compliance failures.



Training session in Singapore.

**e-learning materials** 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 March 2015, 14 new study problems testing basic knowledge about antitrust law were added, bringing the total to 131. Employees can also review 30 compliance-related case studies via the e-learning program.

## 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 also trains 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, and is working to identify potential problems and make any needed improvements.

**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** Every THK location conducts evacuation drills, firefighting exercises, and training in transporting the injured. All employees receive training in safety-confirmation procedures, and every location provides training in the use of satellite phones.

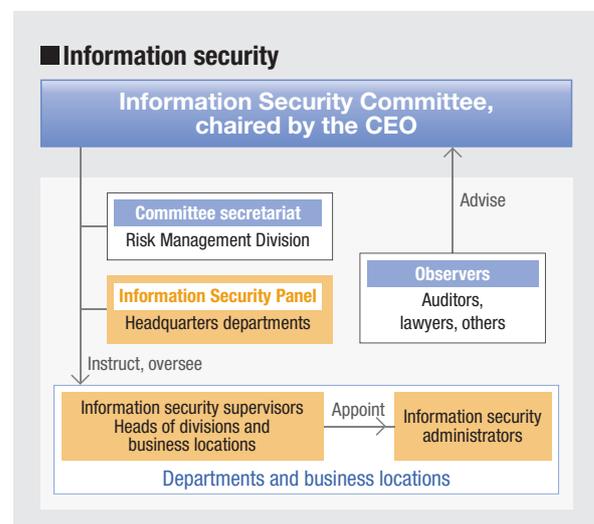
**Countermeasures against infectious diseases** THK continually monitors the status of infectious diseases overseas, including avian flu and the Middle East respiratory syndrome, and relays precautions and other relevant information to employees of overseas affiliates and employees who are traveling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

### Information security

The Information Security Committee, established in 2006 and chaired by the CEO, determines THK policies related to information security and the disposition of information-security matters.

In 2014 the Information Security Committee Office conducted internal audits of information-security arrangements at four business sites in Japan to help ensure that effective systems are in place. Training sessions were conducted at THK plants and affiliates 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.

By consolidating organizational control over its information systems, THK has improved information security throughout the THK Group and implemented effective measures to protect confidential information. The Group's antivirus software has been upgraded to prevent unauthorized access to its computer networks, fend off computer viruses and other malevolent incursions, and prevent illicit disclosure of sensitive information. To defend against attacks on the system employing targeted e-mail, messages originating outside the system are screened for viruses before they are admitted, which keeps potentially harmful e-mail from entering the network.



## Together with our customers

Product quality, customer satisfaction, collaboration with partner businesses

### Quality assurance system

THK constantly strives to provide all its customers with safe and reliable products that meet the world's highest standards for quality. As THK applies increasingly demanding quality controls, some tailored to specific industries, this is reflected in the acquisition of official certifications.

- ISO 9001 certification has been acquired for the quality management system employed at all THK production sites in Japan, elsewhere in Asia, the United States, and Europe.
- ISO/TS16949 certification has been acquired for the quality management system employed at THK production sites that supply products to the automobile industry.
- JIS Q 9100 certification has been acquired for the quality management system employed at THK production sites that supply products to the aerospace industry.

THK's comprehensive quality assurance system includes periodic product-quality audits of suppliers and subcontractors conducted as part of the quality management system. THK has also updated its product-quality information system by establishing a unified global information network, enabling THK to collect, analyze, and disseminate information on product quality, including comments from customers, and quickly provide whatever service is needed.

THK will keep striving to satisfy its customers and incorporate their viewpoints into its quality assurance system in order to meet the needs of the market and the customer.



THK's quality assurance system.

### JSEM award

In April 2014 the Japan Society of Mechanical Engineers named THK's model RW Double-Row Angular Contact Roller Rings as the recipient of its Excellent Product Award. The award is intended to recognize products of high merit that improve on existing technology and are developed at the grassroots-level. THK was recognized for capitalizing on its expertise with the cross-roller ring, an existing product, and developing a more compact double-row component that provides both high rigidity and high rotational speed.



Award plaque.

### Training for engineers overseas



Engineers from overseas locations outside the Technology Center.

In November 2014 ten THK engineers from China, Europe, South Korea, Taiwan, and the United States gathered in Japan for the sixth Global Engineers Meeting. Over the course of five days they attended study sessions on critical speed and the ball screw at the Technology Center, acquired hands-on experience in assembling cross-roller rings at the MIE Plant, and studied technical issues likely to arise in dealings with customers.

Since its inception more than 50 THK engineers from overseas locations have participated in the program, which is designed to provide a better understanding of THK products. THK will continue to provide training in Japan for interested engineers in the future.

## Together with suppliers

**Cooperative arrangement, ideal procurement** THK regards its suppliers as indispensable partners with whom it works together in an effort to achieve mutual growth. THK has established a cooperative system that encourages the sharing of information about new technologies, processing techniques, and materials, in pursuit of the common goal of providing products that satisfy the customer and continually improving those products. THK's system enables timely confirmation of exchange rates, customs duties, and import requirements pertaining to components supplied to each production facility in its four principal territories, and will help ensure optimal procurement conditions in the future.

**Fair and equitable trade** THK selects its partner businesses based on annual evaluations on product quality and timely delivery as well as safety and environmental factors. Consideration is also given to honoring social responsibilities by excluding antisocial forces from the entire supply chain and to promoting green purchasing practices. To support fair and equitable dealings with all parties covered by the laws governing subcontracting, THK's Fair Trade Committee conducts study sessions for all personnel involved in procurement to provide them with accurate knowledge of legal requirements and ensure compliance.

**The THK Association** The THK Association, made up of THK's principal suppliers and other partner businesses, convenes at one general session and three branch meetings every year for discussions of business and purchasing policies. In November 2014 association members heard THK Outside Director Masakatsu Hioki speak on the topic of global teamwork, and many also attended a workshop on cutting tools and energy conservation. At the general meeting awards were presented for Value Analysis proposals (suggestions



Outside Director Masakatsu Hioki speaks to association members.

for improvements in the areas of quality, cost, environmental factors, or safety) submitted by association members. The number of proposals submitted increases every year, providing new ways to provide customers with better products and reinforcing the strong bond between THK and the THK Association.

## Technology exchange



Tour participants at the entrance to the YAMAGUCHI Plant.

In November 2014 the Japan Society for Precision Engineering's Ultra Precision Positioning Committee hosted the Sixth International Conference on Positioning Technology, held in Fukuoka Prefecture. The event included a tour of THK's YAMAGUCHI Plant, which was attended by 17 guests from China, Taiwan, South Korea, and various parts of Japan. They observed grinding, high-frequency hardening, carburizing, leveling, and other processes involved in the production of the LM Guide, which is an indispensable aid to precision positioning and the YAMAGUCHI Plant's principal product.

After the tour a briefing on THK products was held in the factory's showroom, where questions were answered about specialized LM Guides and other topics. The guests also had a chance to experience the effectiveness of THK's seismic isolation devices, which utilize its innovative circular-arc groove design. Based on the feedback received, those participants in the tour were highly impressed with the scale of production operations at the YAMAGUCHI Plant and delighted to get a firsthand look at its vast array of automated machinery.

# In their own words

—Together with our customers—

## Furuno Electric Co., Ltd.



Furuno Electric was founded in 1938. In 1948 the company successfully developed the world's first fish finder for practical use, and it is now the world's foremost maker of electronic devices for marine vessels. Relying on its three core technologies—sensing, processing, and communication—Furuno Electric provides its customers with devices that reveal things that are otherwise invisible and equipment that provides highly accurate information.



(From left) Kazuki Inobe (Engineer, Mechanical Engineering Section, Research & Development Department, Marine Electronic Products Division), Hisataka Yamagami (Assistant Chief, Planning Section 1, Engineering & Procurement Planning Center), and Hiroshi Nobayashi (Planning Section 1, Engineering & Procurement Planning Department).

## THK's strength: A deep product lineup and the ability to meet high standards.

### Why did Furuno Electric start using THK products?

Our relationship with THK began about 10 years ago when we were still using sliding mechanisms on drive shafts for our products. For the electronic devices on marine vessels, sensors have to be lowered into the water from the bottom of the vessel for the sonar, which probes the area in every direction, and we decided to use THK products in the drive shaft that raises and lowers the sensors. For research and development purposes, it was important to be able to speed up the raising and lowering of sonar devices. By using a THK rolling mechanism in a new sonar product, we were able to achieve unprecedented acceleration, enabling a major reduction of the time required to raise and lower sonar devices, compared to previous products.



Rolling mechanism used in internal vertical-motion component. The red portions are the sensors.

### What convinced you to go with THK?

The development target was faster up-and-down motion for our new product, even if only slightly faster. To get there we realized that we needed a mechanism that uses rolling motion, not sliding motion, and it was THK who had the best selection of that type of product. With other manufacturers, for large-diameter specifications the product would have to be specially ordered, but THK had standard products readily available, so we went with THK.

In the past it took time for the sonar equipment to be lowered and raised, and the fishermen who are our customers would be forced to stop and wait. Our new product goes up and down very quickly, so now when they locate a school of fish they can use the sonar immediately and beat the other ships to the fishing ground, which is greatly appreciated.

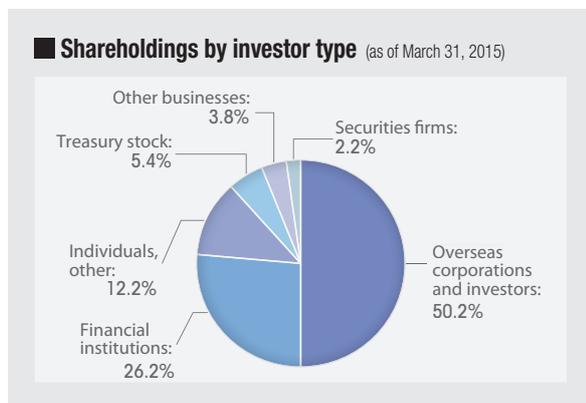
### What are you hoping for from THK in the future?

To ensure that we're making products we can confidently recommend to our customers, we're very strict about product quality, and we raise our standards every year. We look to THK to continue to help us meet our high standards for quality.

## 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.



### 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 45th Ordinary General Shareholders Meeting was held on June 20, 2015, with approximately 400 shareholders in attendance. As in previous years, after the meeting an exhibition was held to provide an opportunity to view THK products firsthand. This year's exhibition featured machine tools, industrial robots, and other industrial machinery essential to the pursuit of *monozukuri*. Also on exhibit were THK products employed in new areas of business, such as seismic isolation, transportation equipment and three-dimensional printers, as well THK products that help generate and utilize renewable energy, in the form of wind power and hydroelectric power.



The 45th Ordinary General Shareholders Meeting.



The annual shareholders meeting exhibition of THK products.

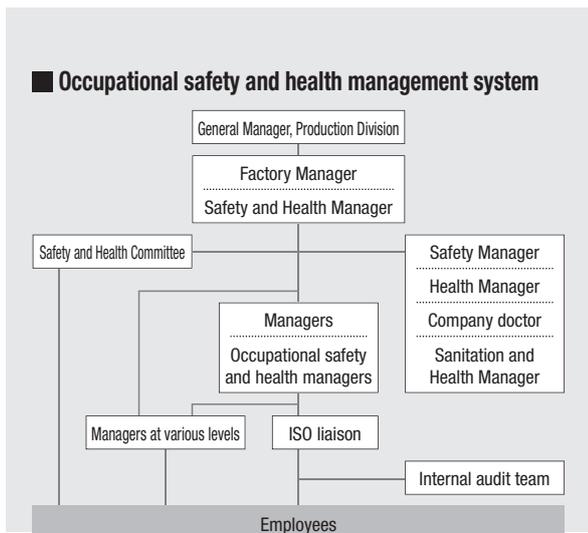
# Together with our employees

Health and safety

## Occupational safety and health management system

To help eliminate accidents in the workplace and promote health and safety in a systematic and sustainable matter, THK has established an occupational safety and health management system, for which it obtained Occupational Health and Safety Assessment Series (OHSAS) 18001 certification in 2010.

Each plant has its own safety and health committee, which discusses and makes decisions about issues and policy related to safety and health, keeps employees informed via departmental meetings and the factory bulletin board, and takes concrete action to ensure safe and healthy conditions at the plant. To help provide a systematic and sustainable safety regimen, twice a year each plant undergoes a safety inspection conducted by a team from a different plant. This type of interaction leads to more effective monitoring and oversight.

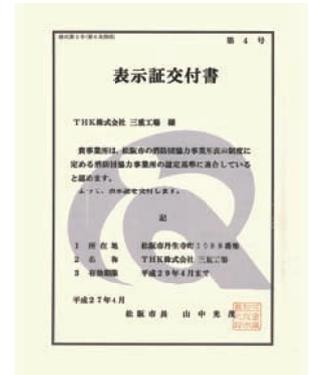


At THK's KOFU Plant, maps and informative posters focusing on the five most dangerous intersections in the vicinity of the plant have been created to explain the situation at each intersection and the reasons why accidents occur there. Displayed at the entrance to the plant's dining hall, these items are frequently viewed by employees.



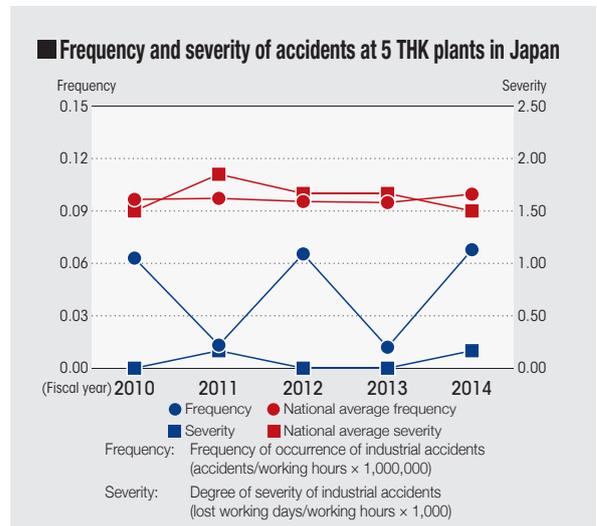
## Firefighting training

In November 2014 employees of the MIE Plant underwent firefighting training, assisted by four members of the Matsusaka Fire Department. Due to heavy rain, the employees were unable to actually practice putting out fires, but the training they received was described by the firefighters as highly suitable for dealing with emergencies. Six plant employees have become members of the local volunteer firefighting team, each of whom has been called into action to help respond to a fire or flooding at the request of the Matsusaka Fire Department. In light of its contributions to firefighting, the team was officially recognized as a volunteer firefighting company in February 2015.



Certificate of recognition.

## Accidents in the workplace



Promoting good health among employees and providing a proper work environment are crucial for securing and maintaining sound operations. Awareness of this fact led THK to establish its occupational safety and health management system, which is based on policies set forth by the Production Division in 2010. THK will continue to make every effort to ensure safe and appropriate working conditions for its employees.

## 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 and 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 2014, 7,213 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
2014	7,213	192

### Training in Sendai

At the THK INTECHS SENDAI Plant, skilled employees from each department have been passing on their knowledge and skills to younger employees, in every area from the design of machine tools to the shipping of finished goods.

Since November 2014 the plant's Mechanics Design Section has been holding weekly mini-seminars, just 15 to 20 minutes long, on the basics of machine tools and machine design, providing younger employees with access to a type of knowledge, cultivated over many years of actual experience, that no textbook can offer. Most employees attending the sessions had already attained a gut-level understanding of the techniques involved, but the mini-seminars provide a grasp of the basics backed by considerable experience. They have learned, for example, that an exaggerated emphasis on safety factors in the selection of a single screw was the key to making larger types of machines. This is knowledge that can be applied in their own work.

The plant's Machine Assembly Section periodically provides on-site instruction for younger employees in four types of processing techniques: scraping (a finishing process in which minute depressions are created on a rolling metal surface, such as a machine tool bed, to reduce frictional drag), turning, milling, and surface grinding.

By arranging for the transfer of knowledge that its skilled employees have cultivated over long years of conscientious service, THK helps ensure that its customers will continue to be provided with products of the highest quality.



Skilled employee Yoichi Kanari (center) leads a study session.

### e-learning

As part of its efforts to support personal development, THK offers 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, includes a newly expanded section on antitrust law. As of March 2015 a total of 53 e-learning courses were available, including eight courses that were added during the past year.

#### ■ Educating employees via e-learning

	Enrollment			Completion
	Eligible employees	Employees enrolled	Percentage of eligible employees	Percentage of enrolled who completed course
September 2012	2,049	1,192	58.2	73.2
September 2013	1,951	1,181	60.5	74.0
September 2014	2,012	1,260	66.6	77.0

## 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, 2015, people with disabilities constituted 2.23% 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. In June 2014 THK Headquarters appointed a specially trained, certified job coach to provide support both on and off the job, facilitate working life, and foster a positive work environment for disabled employees, and the KOFU Plant acquired a job coach in March 2015. The newcomers join two other job coaches who serve at the YAMAGUCHI Plant and GIFU Plant.

THK will keep working to create a hospitable work environment for its disabled employees.

### Disabled employees in the THK workforce (%)

April 2011	April 2012	April 2013	April 2014	April 2015
1.80	1.89	2.01	2.24	2.23

### A gold and a bronze at the Abilympics

In November 2014 the 35th National Skills Competition for People with Disabilities, known as the Abilympics, was held in Nagoya. Tetsuya Yamada of THK's YAMAGUCHI Plant won the gold medal in the product-packing event, marking the fourth consecutive first-place finish by a THK employee. Hayate Kaga of the KOFU Plant won the bronze medal in the same event.



(From left) Gold medalist Tetsuya Yamada and bronze medalist Hayate Kaga.



### In their own words: Concentration pays off for YAMAGUCHI Plant's Yamada

Tetsuya Yamada (Order Management Section, Manufacturing Promotion Department, YAMAGUCHI Plant)



Yamada celebrates THK's fourth straight victory.

My coworkers at the YAMAGUCHI Plant had taken first place in the product packing event at the Abilympics three years in a row, so I felt a lot of pressure to make it four. Still, the people at work were as kind as always, and that helped calm my nerves. I managed to keep my cool at the prefectural and national competition and brought home our fourth consecutive win.

I started working at THK as an apprentice when I was in my second and third year in high school. Before starting the apprenticeship I had heard about the atmosphere at THK from older students who had gone to work there, but people were even nicer than I expected. The kindness I encountered back then has continued to this day. In my job, which is inspecting incoming and outgoing goods and assembling boxes, I try to apply the same level of concentration I learned to use when I was competing in the Abilympics.

THK encourages us to embrace challenges that will enable use to discover what we're capable of. To expand my professional horizons in the future, I'm aiming to acquire level 2 certification in machine inspection under the national trade skill testing system, and I also intend to become a licensed forklift operator.



### In their own words: Hayate Kaga seeks a fifth straight gold medal

Hayate Kaga (Order Management Section, Manufacturing Promotion Department, KOFU Plant)

As a student at Yamanashi Prefecture's Kaede School of Special Support, I attended seven on-site training sessions at the KOFU Plant. I never forgot how nice everyone was, so when it came time to find a job I chose THK. In the morning I work in the office scanning the order slips and drawings that get sent to the factory, and in the afternoon I do packing work. This is only my first year as an employee, but I was able to use my packing experience and ended up representing Yamanashi in the Abilympics. Coming into this year's competition, THK employees had won the gold medal in the product-packing event three years in a row. I had my sights set on winning a medal, too, so I worked hard to get better and ended up winning the bronze. A fellow THK employee from the YAMAGUCHI Plant won the gold medal, so now THK has taken four in a row, which is really great. To show my appreciation to all the people who have supported and encouraged me, I hope to win and make it five in a row next year.

THK doesn't hold back—they give us their full support to tackle new challenges. So far I've only been involved in packing and processing orders, but I'd like to try my hand at other kinds of work in the future.



Kaga competing in the product-packing event.



### In their own words: Kodai Suzuki pursues his goals

Kodai Suzuki (Manufacturing Section I, Manufacturing Department, YAMAGATA Plant)

I learned about THK from older students in high school, and I decided I wanted to work there. When I joined the company I found my fellow employees to be very considerate, and I felt the work environment would encourage my own personal development. Although I have a hearing disability, I participate in track and field events. In November 2014 I represented Yamagata Prefecture in the 100-meter and 200-meter race at a national sports competition for people with disabilities, held in Nagasaki. My goal now is to compete in a tournament called the Deaflympics in 2020. I practice with a club for disabled people in Yamagata.

Ever since I was in high school I've worked on improving my word-processing skills. In September 2014 I competed in the word-processing division of the regional Abilympics. I didn't make it into the national tournament, but I'm still acquiring more skills. I have level-four certification now, and I'm aiming for level three.

At work I'm in charge of pre-assembly processing. I realize that the way I do my job affects the next process and job performance down the line. In the future I'd like to expand my horizons and do assembly processing work at other plants, even overseas.



Verifying the paperwork.



Suzuki trains for his next tournament.

# Together with our employees

Embracing diversity

## Scholarship fund

THK has created a scholarship fund for the benefit of surviving children in need of assistance. The newly established system is designed to defray the cost of tuition and fees for the children of deceased THK employees. Scholarships are available to dependent children under the age of 21 who are legal survivors of a deceased executive or employee whose death occurred during employment with THK.

The new fund enables surviving children to continue their education without interruption, from the onset of benefits until they reach the age of 21.

## Improved childcare leave system

The declining birthrate has become an urgent problem in Japan. THK provides support for employees who are raising children and is working to improve the work-life balance by improving its childcare and family-care systems and ensuring a hospitable environment for employees with young children. In 2014, based on a newly enacted plan of action aimed at providing a higher level of support, THK issued a new handbook designed to help employees better understand their various childcare and family-care alternatives and the procedures involved. The effort to improve and expand the childcare and family-care leave system is an ongoing endeavor that will continue in the future.

Category	Page	Measure	
Pregnant Women	06	妊産婦健診受診に関する措置	
	06	症状等に対する措置	
	07	有害業務の免除	
	07	軽微な業務への転換措置	
Parents	08	時間外勤務等の免除	
	10	産前休暇	
	11	産後休暇	
Childcare Workers	14	育児休業 (保育所入所不可等の場合は1歳6ヶ月まで延長可)	
	15	育児短時間勤務 (短縮時間/3歳まで1日2回最大2時間、就学期間まで1日2回最大1時間)	
	16	深夜勤務の免除	
	16	時間外勤務等の免除	
	17	時間外勤務の制限	
	17	子の看護休暇	
	18	育児時間	
	Childcare Workers	24	介護休業
		25	介護短時間勤務制度
		26	深夜勤務の免除
26		時間外勤務の制限	
27		介護休暇	
27	積立有給休暇の使用		

The new handbook's table of contents.

## 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 2015, 624 employees were presented with commendations and commemorative gifts to honor their long-term service. At THK locations in Europe and the United States, the honors and gifts were presented at the annual Christmas party.

### Length-of-service awards

Continuous service	2011	2012	2013	2014	2015
40 years	0	0	1	4	9
35 years	11	14	17	16	23
30 years	23	69	120	85	131
25 years	129	54	85	101	132
20 years	163	128	96	41	142
15 years	177	92	167	70	68
10 years	113	68	81	91	77
5 years	167	161	177	171	42
<b>Total</b>	<b>783</b>	<b>586</b>	<b>744</b>	<b>579</b>	<b>624</b>

## Recognition for meritorious service

Akira Kawaoka, an employee in the Manufacturing Department at the YAMAGUCHI Plant, has received an award from the Japan Organization for Employment of the Elderly, Persons with Disabilities and Job Seekers in recognition of 20 years of meritorious service. In addition to becoming a certified crane hoist operator and obtaining C-level skill certification under THK's certification system, Kawaoka has demonstrated a very positive attitude on the job and has devoted spare time to performing volunteer service on behalf of the hearing-impaired.

Working life inevitably entails some hardships, but Kawaoka believes that personal growth results from overcoming such challenges. His current goal is to become a licensed forklift operator.



Akira Kawaoka, at right, with an unidentified fellow award recipient.

## 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

September 2014	Disaster relief in Nagiso, Nagano Prefecture, following Typhoon Neoguri	Japanese Red Cross Society, Nagano Branch
	Disaster relief in Tokushima following Typhoon Halong and Typhoon Nakri	Japanese Red Cross Society, Tokushima Branch
	Disaster relief in Kyoto and Tamba, Hyogo Prefecture, following torrential rains	Japanese Red Cross Society, Kyoto and Hyogo Branch
	Disaster relief in Hiroshima following torrential rains and landslides	Japanese Red Cross Society, Hiroshima Branch
June 2015	Disaster relief in Nepal following a major earthquake	Japanese Red Cross Society

#### Other donations

November 2014	Community Chest of Tokyo	Community Chest of Tokyo Fund
January 2015	Japan Science Foundation	Japan Science Foundation Fund

### Kazuo Suzuki: Coaching children's rugby

I started playing rugby in high school after seeing a show about it on TV. After I graduated from university I declined an invitation to join a company team and didn't play for a few years. I was drawn back to rugby, though, and these days I play for a local team. One of my teammates asked if I'd be interested in coaching at a rugby school that had been set up for local kids, so now I coach children's rugby every weekend.

Rugby is a sport in which individual players have to make sacrifices to help their team win. My hope is that, by playing rugby, our kids will develop greater awareness of and concern for other people. We're going to do our best to produce players who can compete in the 2019 Rugby World Cup, which will be held here in Japan.



Children's rugby coach and THK employee Kazuo Suzuki, who works in the Sales Department at the KOFU Branch.

### Cleaning up Mount Fuji



In August 2014 Volunteers from the THK INTECHS MISHIMA Plant took part in a campaign to clean up Mount Fuji, sponsored by a nonprofit organization. Their efforts were focused on a fifth-station parking area as well as a climbing path. The volunteers collected around 10 kilograms of refuse in a single day, most of which was litter. They realized that it will take a long time to thoroughly restore the mountain to its pristine beauty. Even so, it would help a great deal if climbers and other visitors would simply mind their manners along the way.

### Technology students visit Liaoning

In September 2014 students in an international exchange program at the National Institute of Technology at Kure College toured the THK plant in Liaoning, China. This was the second such visit, the first having taken place in September 2013. According to the instructors who escorted them, these students and future engineers found it very stimulating to get a firsthand look at *monozukuri* in action. Some students commented on the friendly attitude of the plant's employees and the cleanliness of the facilities.



A briefing for visiting students at the THK plant in Liaoning.

## Environmental management

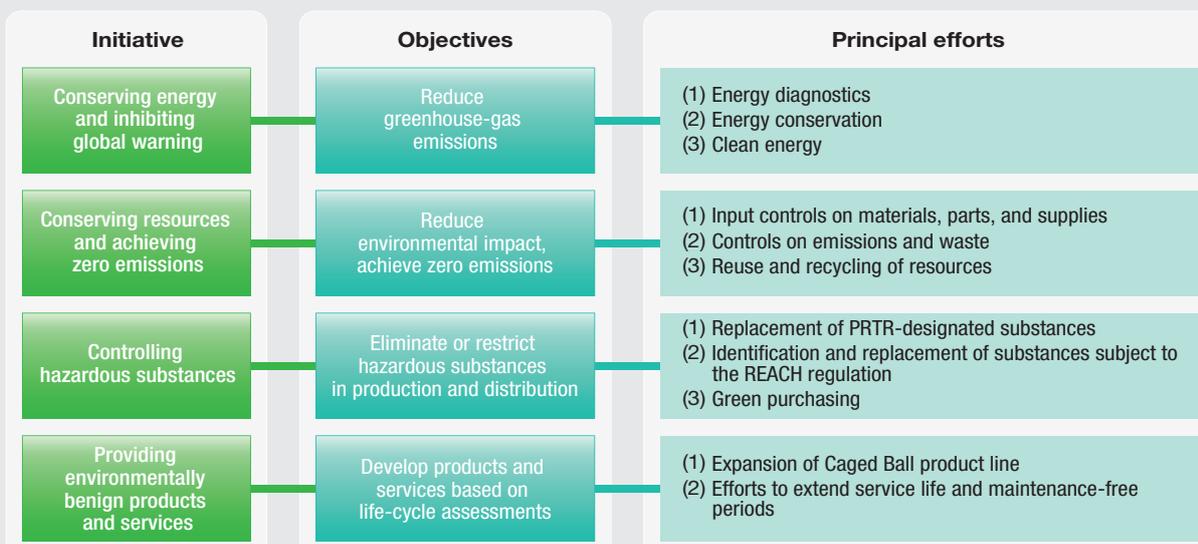
### Basic environmental policy

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. The plan-do-check-act cycle is carefully applied in order to continually improve environmental management. The THK affiliate TRRC, located in the Chinese city of Changzhou, acquired ISO 14001 certification in 2014.

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 monitors the progress of THK's environmental efforts and helps ensure that effective measures are put in place.

In 2014 THK achieved two of its three primary environmental objectives for the year, meeting numerical targets for energy conservation and reducing CO<sub>2</sub> emissions as well as for conserving resources and progressing toward zero emissions (reducing the volume of end waste). The 2014 target for reducing the use of PRTR-designated hazardous substances, however, was not achieved.

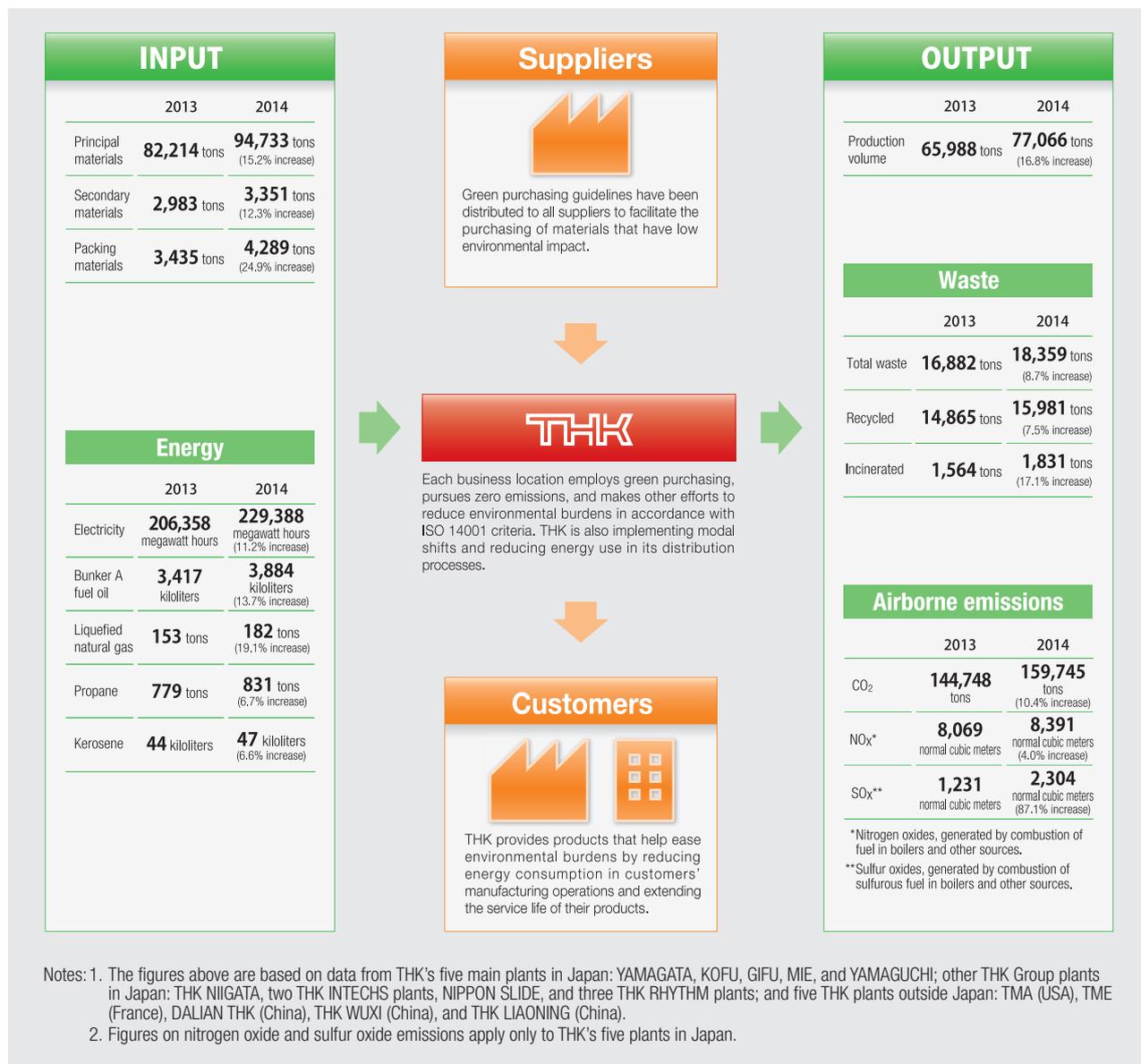
## ISO 14001 certified facilities

Facility	Date certified	Certifying body
YAMAGATA Plant	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
TRTC (Thailand)	Jul. 9, 2010	URS
TRGC (China, Guangzhou)	Dec. 9, 2010	SGS
TRMS (Malaysia)	Oct. 25, 2011	DQS GmbH
THK INTECHS MISHIMA & SENDAI Plants	Mar. 21, 2013	Class NK
TRCC (China, Changzhou)	Mar. 17, 2015	BUREAU VERITAS

## THK's environmental targets

No.	Task	Fiscal 2014 results & fiscal 2015 targets	Targets to be achieved by 2017																					
1	Conserving energy and inhibiting global warming	<p><b>Reducing basic-unit CO<sub>2</sub> emissions (tons per ¥1,000,000)</b>                      2014 target: 1.03; 0.92 achieved (target met).                      2015 target: 0.91 (1% lower than in 2014).  <b>Major efforts in 2015</b>                      (1) Switch to more energy-efficient heating and cooling systems                      (2) Switch to energy-efficient LED lighting                      (3) Switch to more energy-efficient power-receiving equipment</p>	<p><b>Reduce basic-unit CO<sub>2</sub> emissions by 1%. Baseline: 0.92 tons per ¥1 million</b>                      (tons per ¥1 million)</p> <table border="1"> <caption>CO<sub>2</sub> Emissions (tons per ¥1 million)</caption> <thead> <tr> <th>Fiscal year</th> <th>Target</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>2012</td> <td>0.92</td> <td>1.11</td> </tr> <tr> <td>2013</td> <td>0.92</td> <td>1.08</td> </tr> <tr> <td>2014</td> <td>0.92</td> <td>1.03</td> </tr> <tr> <td>2015</td> <td>0.91</td> <td>0.91</td> </tr> <tr> <td>2016</td> <td>0.91</td> <td>0.90</td> </tr> <tr> <td>2017</td> <td>0.91</td> <td>0.89</td> </tr> </tbody> </table>	Fiscal year	Target	Actual	2012	0.92	1.11	2013	0.92	1.08	2014	0.92	1.03	2015	0.91	0.91	2016	0.91	0.90	2017	0.91	0.89
Fiscal year	Target	Actual																						
2012	0.92	1.11																						
2013	0.92	1.08																						
2014	0.92	1.03																						
2015	0.91	0.91																						
2016	0.91	0.90																						
2017	0.91	0.89																						
2	Conserving resources and achieving zero emissions	<p><b>Maintaining a minimal emissions rate</b>                      2014 target: Rate under 0.50%; 0.45 achieved (target met).                      2015 target: Rate under 0.50%.  <b>Major efforts in 2015</b>                      (1) Recycling of grinding materials                      (2) Recycling of plastic waste                      (3) Reduced use of packing materials</p>	<p><b>Maintain zero emissions—less than 0.5% of waste undergoes final disposal.</b>                      (%)</p> <table border="1"> <caption>Waste Disposal Rate (%)</caption> <thead> <tr> <th>Fiscal year</th> <th>Target</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>2012</td> <td>0.50</td> <td>0.54</td> </tr> <tr> <td>2013</td> <td>0.50</td> <td>0.55</td> </tr> <tr> <td>2014</td> <td>0.50</td> <td>0.45</td> </tr> <tr> <td>2015</td> <td>0.50</td> <td>0.50</td> </tr> <tr> <td>2016</td> <td>0.50</td> <td>0.50</td> </tr> <tr> <td>2017</td> <td>0.50</td> <td>0.50</td> </tr> </tbody> </table>	Fiscal year	Target	Actual	2012	0.50	0.54	2013	0.50	0.55	2014	0.50	0.45	2015	0.50	0.50	2016	0.50	0.50	2017	0.50	0.50
Fiscal year	Target	Actual																						
2012	0.50	0.54																						
2013	0.50	0.55																						
2014	0.50	0.45																						
2015	0.50	0.50																						
2016	0.50	0.50																						
2017	0.50	0.50																						
3	Controlling hazardous substances	<p><b>Reducing the use of PRTR-designated substances</b>                      2014 target: 50,645 kilograms; 62,862 kilograms achieved (target not met).                      2015 target: 60,976 kilograms or less.  <b>Major efforts in 2015</b>                      (1) Controlled usage of fuel-oil-powered equipment                      (2) Promotion of green purchasing practices                      (3) Reduced use of solvents, use of non-solvent alternatives</p>	<p><b>Reduce annual volume of PRTR-designated substances by 3%. Baseline: 62,862 kg</b>                      (kg)</p> <table border="1"> <caption>PRTR-Designated Substances (kg)</caption> <thead> <tr> <th>Fiscal year</th> <th>Target</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>2012</td> <td>62,862</td> <td>56,305</td> </tr> <tr> <td>2013</td> <td>62,862</td> <td>52,755</td> </tr> <tr> <td>2014</td> <td>62,862</td> <td>50,645</td> </tr> <tr> <td>2015</td> <td>60,976</td> <td>60,976</td> </tr> <tr> <td>2016</td> <td>60,976</td> <td>59,146</td> </tr> <tr> <td>2017</td> <td>60,976</td> <td>57,372</td> </tr> </tbody> </table>	Fiscal year	Target	Actual	2012	62,862	56,305	2013	62,862	52,755	2014	62,862	50,645	2015	60,976	60,976	2016	60,976	59,146	2017	60,976	57,372
Fiscal year	Target	Actual																						
2012	62,862	56,305																						
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2017	60,976	57,372																						

# Environmental impact: The big picture



## Environmental conservation: Costs

(¥ million per year)

Type	Investment	Cost	Principal efforts
<b>1. Business costs</b>			
Pollution controls	5	45	Monitoring air and water quality, maintaining scrubbers and septic tanks
Global environmental conservation	156	25	Installation of energy-efficient fixtures and incidental equipment
Recycling	1	109	Disposal of waste materials, reducing recycling costs
<b>2. Upstream and downstream costs</b>			
	0	16	Green purchasing
<b>3. Management</b>			
	0	178	Acquisition of ISO certification, reduction of energy usage, management of chemical substances
<b>4. Research and development</b>			
	77	301	
<b>5. Community activities</b>			
	0	7	Planting and beautification, informational initiatives
<b>6. Repairing environmental damage</b>			
	0	0	
<b>Total</b>	<b>239</b>	<b>681</b>	

## Environmentally friendly from the start



### In their own words: Maintaining high quality and protecting the environment

Kazushige Ohno (President, DALIAN THK Co., Ltd.)



DALIAN THK became THK's first production facility in China when it began operations in 1996. Its business has expanded over time, and a new plant went into operation in February 2015. DALIAN THK's main product is the Ball Screw, a key component in machine tools, semiconductor-manufacturing equipment, and many other types of machines. The new plant was designed not only to improve productivity but also to be environmentally friendly. Everything about the plant, from the buildings, the heating and cooling systems, the lighting, and the production equipment, to the roads running through the grounds, the production processes and management techniques, the work environment for employees, and the impact on the surrounding area, was conceived with an emphasis on environmental considerations.



To protect the environment, the plant is equipped with large-scale mist collectors and water-purification equipment, an LPG-fueled steam boiler, and chip-processing equipment, which greatly reduces the environmental impact on the air and land around us. This kind of equipment also keeps the work environment clean, providing pleasant conditions for our employees. It's also intended to reduce waste and improve recycling and resource-recovery rates.

To conserve resources, the plant roof has been insulated to reduce the amount of energy required for air conditioning. The heating system uses an inverter-equipped turbo refrigerator as a heat source, and all interior units can be controlled by inverters, for effective temperature control amid Dalian's intense summer heat and winter cold. LED lighting is used virtually everywhere in the plant, offices, and dormitories, and bathrooms and seldom-used corridors are equipped with sensors to prevent unnecessary lighting. DALIAN THK uses a great deal of cutting and grinding machinery, but semi-intensive temperature management (separate from coolant equipment) of the coolants used in these machines keeps the workplace clean and also reduces power consumption.

I don't have adequate space here to describe them all, but many other devices have been incorporated in the effort to address the full range of environmental concerns. We have a central monitoring system that keeps track of the equipment operating all over the plant, which enables efficient usage of electric power, water, gas, and other resources.

DALIAN THK is a highly advanced production facility, and the use of advanced machinery makes a big difference in the products we turn out. In addition to incorporating all this sophisticated equipment, we have also made the greatest possible effort to incorporate and utilize information technology in our production processes. We intend to use the resulting data to identify the most effective ways of protecting the natural environment.



A massive water-purification tank. Some of the purified water is used to feed nearby vegetation.



Solar power is collected to heat the plant's water. Some of the water is used for the plant's showers and heating system.



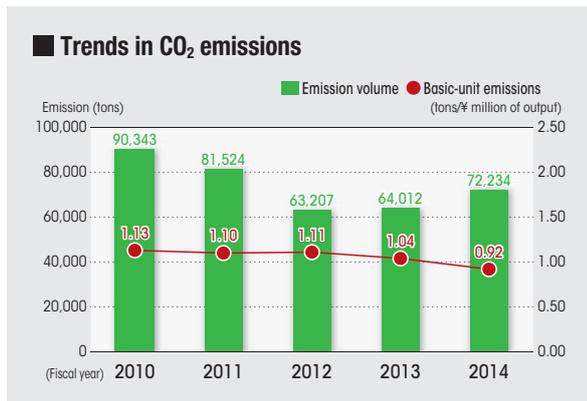
LED lights in a grinding facility. LED lighting consumes only one-third of the electricity required for mercury lights.

## Conserving energy and combating global warming

### CO<sub>2</sub> emissions

THK's targets for reducing CO<sub>2</sub> emissions are expressed in basic units (CO<sub>2</sub> emissions divided by the value of goods produced). The 2014 target was 1.03 and the actual result was 0.92, an impressive 10.7% improvement. Thus, the target was achieved. In terms of absolute quantities, however, increased production resulted in a rise in CO<sub>2</sub> emissions from 64,012 tons in 2013 to 72,234 tons in 2014, an increase of 12.8%.

In 2014, THK upgraded its power-receiving equipment; installed energy-efficient heating and cooling equipment; replaced fluorescent and mercury lights with LED lights, metal halide lamps, and motion sensors; installed solar panels; upgraded and used fewer air compressors; had thermal paint applied to factory walls; and installed inverters on coolant equipment. Despite all these efforts, no reduction in absolute-quantity CO<sub>2</sub> emissions was achieved. THK will continue to upgrade its facilities in 2015 with the expectation of reducing such emissions.



### Award for energy conservation

The KOFU Plant was honored by Yamanashi Prefecture in 2014 for its energy-saving efforts. Each year a business or public institution within the prefecture is selected to receive its "energy-smart" award in recognition of dedicated efforts to conserve energy and achieve greater energy efficiency.

The KOFU Plant has upgraded its heating and cooling equipment, installed inverters, replaced fluorescent with LED lights, and established a system for monitoring temperature and humidity as well as heating and cooling equipment around the clock. These efforts resulted in a 21.8% reduction in basic-unit energy consumption (energy usage divided by the value of goods produced) compared to the previous year. In addition, to help them maintain a heightened awareness of

the need to save energy, employees were provided with portable energy-conservation checklists. The plant held periodic energy-efficiency workshops as well as general meetings on energy strategy attended by all employees, where successful efforts at other plants were introduced. All these actions helped make the KOFU Plant an "energy-smart" operation.



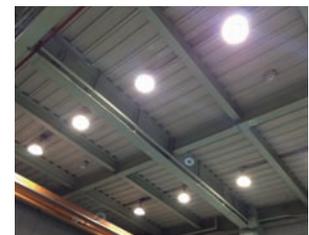
Yamanashi Lieutenant Governor Wataru Hiraide (left) congratulates then Plant Manager Masanobu Mori at the award ceremony on January 19, 2015.

### Installing LED lighting

The office at the YAMAGATA plant was formerly lit by 161 fluorescent light fixtures, which have been replaced with LED fixtures, lowering power consumption by around 13,000 kilowatt-hours per year. Further energy savings were achieved by converting incandescent emergency lights to LED. Future plans call for replacing the many mercury lights currently installed on the plant's high ceiling with LED lights.



At the THK INTECHS MISHIMA Plant, 39 sets of mercury lights in the production area have been replaced with LED lights, reducing power consumption by approximately two-thirds. LED fixtures have also replaced 244 fluorescent lights in the plant's office, reducing energy use by about half. Thanks to these measures, the MISHIMA Plant has reduced its annual power consumption by 43,000 kilowatt-hours.



At THK Manufacturing of Europe, 260 mercury lights inside Factory 1 have been replaced with LED lights, reducing annual energy use by 40,000 kilowatt-hours. This has also improved visibility by increasing the average brightness measured at 45 locations within the factory from 231 to 368 lumens. The lights in Factory 2 are scheduled to be converted to LED in 2015.



### Rooftop insulation

At THK NIIGATA, improvements have been made to the roof to enhance the efficiency of the plant's air conditioning and thereby reduce power consumption. A layer of insulation has been installed on the 2,800 square-meter roof of Factory 1 in the plant's old wing, which occupies about 20% of the entire plant. This has lowered the summertime temperature on the roof's inner surface by as much as 17°C, resulting in a 2.0% reduction in energy use compared to 2013 and decreasing peak power-consumption, which is especially important in summer, when demand is high. Other sections of the roof are expected to undergo similar improvements, which will result in further energy savings.

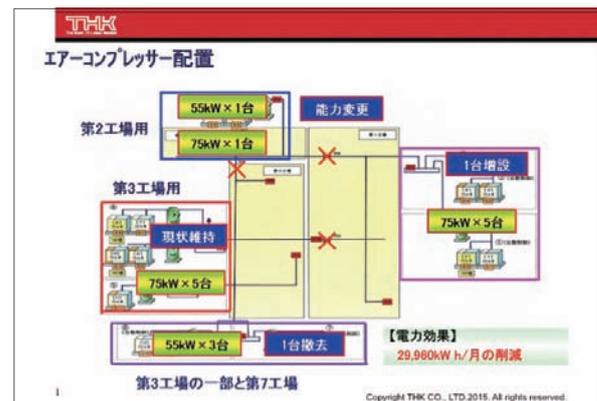


The NIIGATA Plant, where rooftop insulation has reduced energy consumption.

Newly insulated section.

### Efficient use of air compressors

At the YAMAGUCHI Plant, the addition of a second and third factory has been accompanied by changes in production and production equipment. In some cases, production areas were located far from the plant's air compressors, which made it difficult to supply adequate pressure and resulted in excessive power consumption. To resolve these problems, air compressors have been relocated and their numbers have been adjusted to accommodate the new arrangement more efficiently. In addition, valves have been installed on air pipes, and narrower piping has been installed. All the compressors are run by a control system that was already in use, ensuring optimal operation. The aforesaid improvements have resulted in a 14% reduction in air-compressor power consumption.



Relocated air compressors at the YAMAGUCHI Plant.



### In their own words: Improvements at the MIE Plant

Masami Fujita (Manager, General Affairs Section, MIE Plant)

The MIE Plant acquired ISO 14001 certification for environmental management in September 2002 and OHSAS 18000 certification for occupational health and safety in December 2010. We run a safe, environmentally conscious operation. We practice energy conservation, pursue zero emissions, and control environmentally burdensome substances. To conserve energy, we have switched to LED lighting and electric-powered forklifts, and we've also upgraded the air conditioning in one of our grinding facilities, which was a longstanding concern.

The air-conditioning project, which began in December 2014 and finished in January 2015, yielded a 20% reduction in electricity consumption and a 40% decrease in the volume of liquid-petroleum gas used. The new system has an exhaust-air treatment

mechanism, which allows that powerful air stream to be recycled, improving the overall efficiency of the system. Any mist that gets generated is dispelled by roof fans, so there has been a tremendous improvement in the work environment as well.



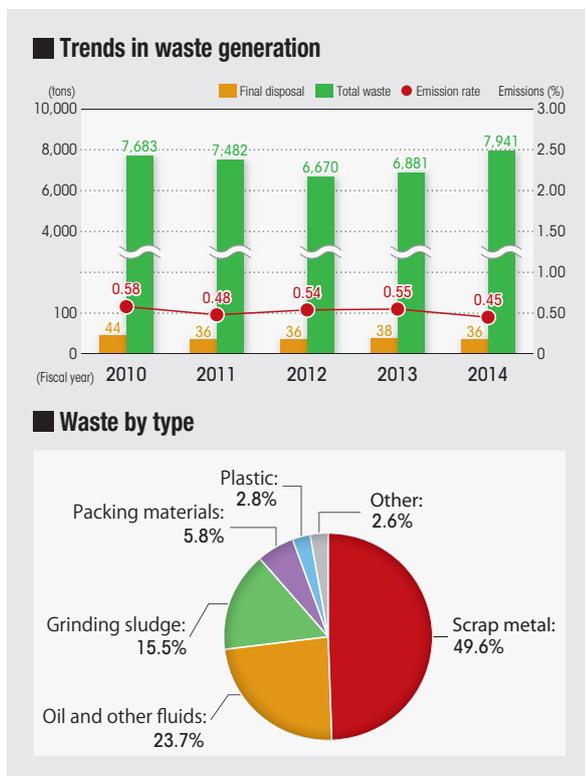
To contribute to the local community, we send employees to Matsusaka Technical High School to lead special classes there, and we also hold energy-conservation workshops for local businesses. We try to help people better understand the environmental situation.

## Conserving resources, pursuing zero emissions, and managing hazardous substances

### Status of current efforts

Not content to merely manage waste, THK has established comprehensive production systems designed to comply with societal expectations concerning recycling. In addition to improving its extraction rate for components and materials and greatly reducing the volume of waste generated, THK promotes conservation and pursues zero emissions by thoroughly sorting waste materials and recycling those that are reusable. As shown in the graph below, a variety of waste materials are generated but most are recycled in the form of raw materials for metals, paving materials, and fuel.

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 2014 target was a rate below 0.50%, and THK recorded an emission rate of 0.45% for the year, meeting the target. The emissions target was achieved largely because discarded grinding materials, some of which could not be recycled and had to be buried or incinerated the previous year, were successfully recycled in 2014 with the assistance of an outside contractor.



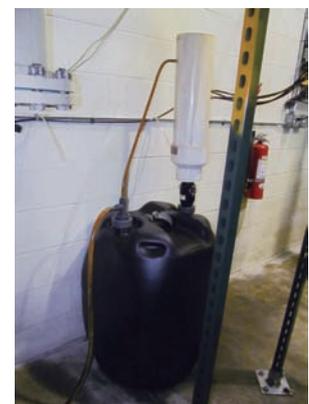
### PRTR-designated substances

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. THK’s use of such substances in 2014 greatly exceeded that for 2013, however. Total volume for the year was 62,862 kilograms, which was 10,650 kilograms more than the 2013 total of 52,212 kilograms, for an increase of 20.4%. The increase is attributable to an unavoidable return to cogeneration as a means of balancing power consumption in the cold and hot seasons, which led to much greater reliance on fuel oil.

Substance	Amount used (kg)	Airborne emissions (kg)
Xylene	3,393	1,129
Toluene	7,307	3,854
Ethyl benzene	1,221	15
Benzene	212	32
Methyl naphthalene	46,788	205
Other	3,941	—
<b>Total</b>	<b>62,862</b>	<b>5,235</b>

### Purifying waste water from compressors

As part of an ongoing effort to address water pollution, officials at THK Manufacturing of America are using a filtering mechanism to prevent oil mixed in with waste water produced by air compressors from reaching the outside. To protect the environment, the waste water is run through the filtering device before being introduced into the municipal sewer system, from which it emerges at a water-treatment facility where it is purified and then routed into a nearby river. The waste water is tested every quarter to monitor the content and ensure compliance with municipal standards for water-borne emissions.



## Green distribution

### Overview

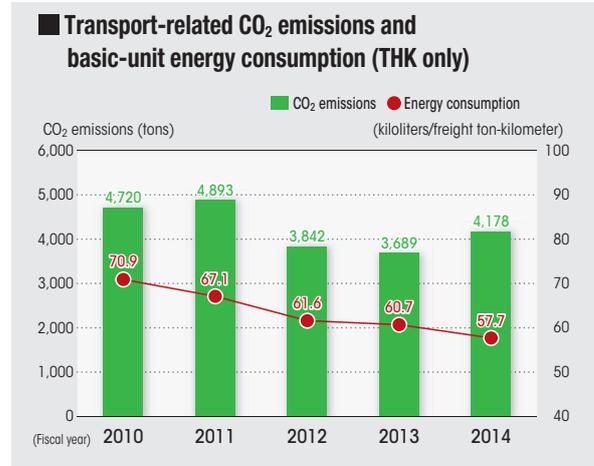
THK's Distribution Center, which operates facilities in various locations, continues to practice green distribution in an effort to reduce environmental impact throughout the distribution process. THK is implementing modal shifts, consolidating truck shipments, improving packing methods, and pursuing other initiatives in accordance with three key principles of green distribution: reducing transport-related CO<sub>2</sub> emissions, making transport operations more efficient, and reducing waste.

**Revised distribution scheme** In the past, products manufactured at the LIAONING Plant and WUXI Plant that were destined for Japan were transported by ship to the port of Nagoya and then by truck to the CHUBU Distribution Center. Following a revision of overall distribution arrangements, those products are now transported by truck from the port of Kita Kyushu to the YAMAGUCHI Distribution Center, reducing the distance from the port to the distribution center and cutting CO<sub>2</sub> emissions by 1,232 tons.

**Reducing waste** The YAMAGUCHI Distribution Center used to use polypropylene bands and plastic wrap to pack products stacked on pallets, to prevent load shifting. By using the right packing tools to ensure that there are no spaces between the products, it has become possible to conserve on packing materials and reduce waste. In addition, when shipping units that incorporate multiple products, THK has complied with customer requests to reduce packing materials by using carefully designed cushioning material to protect products from damage during shipping and by effectively using fabric belts. Thus, THK is applying its accumulated expertise to reduce the volume of packing materials.

### Transport-related CO<sub>2</sub> emissions

CO<sub>2</sub> emissions generated by the shipping of products and parts jumped from 3,689 tons in 2013 to 4,178 tons in 2014, a major increase of 489 tons, or approximately 13.3%. Basic-unit energy consumption (the volume of energy consumed divided by ton-kilometers of freight) declined by roughly 4.9%, however, from 60.7 to 57.7. Despite a modal shift toward greater reliance on ships and railways, improved load ratios for trucks, and more consolidated shipments, THK did not succeed in reducing transport-related CO<sub>2</sub> emissions in 2014.

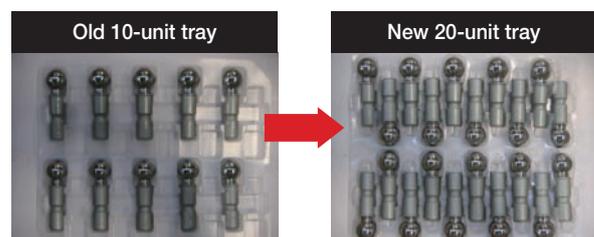


### Reduction in packing materials

THK RHYTHM has reduced the volume of items sent to THK plants in the United States by packing more products inside small boxes, thereby reducing packing materials, and reducing the number of shipping containers required. Redesigned packing arrangements enabled 20-unit trays to replace 10-unit trays, increasing box capacity. As a result, boxes that used to fit five 50-unit tray configurations can now fit three 60-unit configurations, for a 20% increase in small-box capacity. This has led to a major reduction in packing materials, transport hours, and overall work hours.

These developments have been accomplished with no decline in quality or function. Thanks to the reduction of materials required, it has been possible to conduct repeated trials involving THK production lines in Japan and the United States, and cooperative efforts have enabled further improvements in packing and transport methods. As a result, THK has attained a safe-volume maximum capacity of 15 kilograms for small boxes.

THK RHYTHM will keep working to protect the environment, not only in product packing but throughout the production process.



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## Third-party opinion

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### Boundless expectations for THK

—Pursuing further advances for Japanese craftsmanship—

I've been involved in research and development in the area of *monozukuri* for nearly 50 years. I was professor at the University of Tokyo's Institute of Industrial Science for 30 years, and after retiring from that position in 2000 I started a technology development company with financial backing from the Taiwanese firm Hon Hai Precision Industry.

Since my time at the university I have pursued my interests and studied a broad range of mechanical processes, from molding to machining. When a university researcher takes on a broader field of study, there tends to be less depth in terms of specialized expertise. In my case, however, the most innovative discoveries happened when I became involved in new areas.

In the 15 years since founding the company, which, like many other small businesses, is located in Tokyo's Ota Ward, I have come to know the difficulty of researching and developing manufacturing technology as a company personally and on a daily basis. In university research, the results generally take the form of a paper that includes some recommendations for actual *monozukuri*, and if it brings about improvements or reforms, that's good enough. Furthermore, the audience consists of manufacturers in general, or even the world as a whole, and it's understandable if your results aren't put into practice until some point in the future. By contrast, developing manufacturing technology for Hon Hai Precision, a giant manufacturer in China, is no easy task. They already have access to the world's most advanced production machinery, so we have to come up with something even better. In addition, they are a known entity with an established record in mass production, so applicability to mass production is a given. What's more, the end customers are top-ranked companies, so there are very strict, top-class requirements for precision and product quality. For this reason, it's useless to simply propose a new processing method. We have to actually develop the production equipment and try it out. If the results are satisfactory, it may be adopted.

These have been difficult obstacles for me, accustomed as I was to working in the academic world. Most production engineers in developing countries are mainly involved in procuring commercially available production equipment and don't understand how hard it is to develop new technology. But we're located in Japan, which has a favorable environment made up of small development companies like ours. We have small firms that design mechanical systems and others that handle electrical components and software, and these kinds of companies can produce custom specifications for everything from molding machines to machine tools.

After I became involved in developing production equipment, I was once again impressed with Japan's wealth of infrastructure for developing and producing machinery and equipment. In the past, whenever I've been consulted by a research institution in a developing country, however wonderful the technology-development plan, they have virtually always had to import the equipment from Japan. This may be why Japan still has the best environment of any country in the world for creating new products and technology. I can understand why Apple is opening a research facility in Yokohama.

When I was at the university I was sometimes asked about THK's craftsmanship, and I'm now in a position to be very grateful for the LM Guide and many other THK devices. In the effort to develop sophisticated, durable, and reliable equipment, you can't create a truly superior device unless you use first-class components. I hope the performance of those essential components will continue to be improved. THK's bedrock achievement was its founder's invention of the LM Guide. That was followed by the development of many other devices for use in mechanical systems, which together make up a major contribution to the success of Japan's machine industry. Ask what customers want and the answers never end, some might say, but I would ask that THK understand its future social responsibilities and continue to lead the way in further improving Japan's manufacturing technology.



Takeo Nakagawa  
Professor Emeritus, the University of Tokyo; Chairman & CEO, Finetech Corporation

**Curriculum Vitae:**

Born in 1938. Graduate of the Department of Precision Engineering, the University of Tokyo. Appointed professor of the Institute of Industrial Science, the University of Tokyo, in 1979. Appointed Professor Emeritus, the University of Tokyo and Researcher Emeritus at the Institute of Physical and Chemical Research in 1999. Recipient of the Okochi Memorial Prize and the ASME/SME M. Eugene Merchant Manufacturing Medal among other honors. Founded the company Finetech in 2000 and currently serves as its president. Serves as an outside director of the Fanuc Corporation, Tsugami Corporation, OSG Corporation, and the Nippon Pillar Packing Company. Special adviser to the Foxconn Technology Group and adviser to the Nidec Corporation.

## Postscript

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

This year's *CSR Report* includes a three-part feature section examining THK's efforts to honor its corporate social responsibilities in a number of key areas. The first part looks at ways in which THK technology is used to protect property and vital assets as Japan marks the twentieth anniversary of the Great Hanshin-Awaji Earthquake. The second part focuses on an experiment in hydroelectric power generation using irrigation canals, intended as a contribution to regional revitalization. The third part examines efforts by THK RHYTHM to help combat global warming, an initiative that won the firm a commendation from Japan's Minister of the Environment.

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

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 2016.

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